EXAMINATIONS IN HIGHER EDUCATION

Examinations in Higher Education

Report of a Seminar
held on January 27-31, 1971
at New Delhi.



INTER-UNIVERSITY BOARD OF INDIA & CEYL
ROUSE AVENUE, NEW DELHI

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REPORT

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Preface

THE FOLLOWING PAGES present a report of a seminar on examinatioı which was organised by the Inter-University Board in January 1971

Each university was asked to nominate two participants to the seminar One of them was to be an administrator and the other was to be an academic person. The theme of the seminar had both these dimensions and it was important to get both types of representatives from universities Some of the administrators are not only competent in the secretarial and executive sense, they also have a wider understanding of the problem The same applies to the academics Quite a few of them are sensitive to the administrative implications of the proposals made. Getting them to interact with each other was therefore important. As should be evident from the list of participants given at the end of Part I, the administrators as well as the academics attended in almost equal numbers.

The remarkable thing about the seminar however was not the number of papers presented (a condition of participation was presentation of a paper) nor the number of participants, but the earnestness and the sense of involvement which they brought to bear on the discussions. Almost everyone who participated was aware that this was a problem that had been neglected ar too long More than one participant recalled the observation of the Radhakrishnan Commission made in 1949 that "if we are to suggest any ngle reform in university education, it should be that of examinations", d wondered why no progress had been made over the last two decades course there is no precise answer to this question. Even the following mment made by the Education Commission in 1966 explains the situation y up to a point:

"In the present system, when the future of the students is totally decided by one external examination at the end of the year, they pay minimum attention to the teachers, do little independent study through-

out most of the academic year and cram desperately for the final examination. The crippling effect of external examinations on the quality of work in higher education is so great that examination reform has become crucial to all progress and has to go hand in hand with the improvements in teaching.... This is one of those areas in education about which one can say that the problem is known, its significance realized, the broad lines of the solution—at least to begin with—are known; but for some reason or other, an effort to implement it on any worthwhile scale or in a meaningful manner has not yet been made. What is needed is vigorous and sustained action." (11.52)

The call for vigorous and sustained action found a ready echo in the course of discussions at the seminar. Amongst other things, the seminar also considered the question why there was so much of talk and so little of action in regard to examination reform. One explanation at any rate seemed to be that recommendations and proposals made by committees and seminars on this subject are not always detailed or concrete enough. The seminar therefore took particular care to see that its own discussions did not lose touch with the realities of the situation and that whatever proposals it made were of a kind that could also be implemented. In plain words, the seminar went somewhat beyond a mere call to action. It also tried to evolve as far as it could, a set of practical and practicable recommendations. To what extent it succeeded may be judged by the readers of this report.

If some people think, as quite a few of them would undoubtedly, that these proposals make demands upon the resources, managerial as well as professional, of universities in a measure which is beyond them, only one thing can be said. If these proposals are not implemented today, the problem will become more and more insoluble. This is precisely what has happened in the course of the last two decades. What the universities have therefore to decide is: at what point of time do they break with the past and how and when they embark upon a programme of academic renovation? Whenever they decide in the positive, whether it is today or tomorrow the programme of action which they would be required to undertake would be more or less as recommended in these pages. Indeed with the passage of time the programme of action might have to be made more stringent and more thorough going. There is no possibility whatsoever of its being made softer and less demanding.

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As it got down to the job, the editorial committee decided to prepare the report not only in terms of recommendations but also in terms of a substantial part of the discussions Amrik Singh was authorised to draft each chapter which was then discussed by the members of the editorial committee. Despite a number of interruptions and other pre-occupations the task has now been completed and is submitted for the consideration of the academic community.

As readers would be able to see for themselves, the report has been written in the form of an exposition as well as a commentary. Analytical material on various aspects of examinations is neither plentiful nor available easily. It was felt therefore that, to some extent at any rate, the report should also serve as an introduction for university and college teachers to the range and complexity of problems that they are required to solve

With regard to the papers presented the editorial committee had a difficult job to perform. For reasons of space as well as expense, obviously all the papers presented could not be published The committee therefore decided to select such papers as fitted in with the scheme of chapter formation as given in Part I There was a lot of repetition and overlap amongst the papers presented. To tidy it up was a complex editorial job and, it is hoped, that it has been done to everybody's satisfaction

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At the invitation of the seminar the firm of M/s IBM arranged a lecture-*cum*-demonstration for the benefit of the participants In the course of this lecture they demonstrated how data processing and other related jobs could be done with the help of machines In addition, the library of the Inter-University Board organised a book exhibition consisting of 106 items drawn from the library of the Board. Both these features were appreciated by the participants

The report is presented to the academic community in terms of the suggestion made by the Education Commission for vigorous and sustained action It may also be mentioned that as a contribution towards that objective, the Inter-University Board is meeting in an extraordinary session on October 8 & 9, 1971 at Delhi.

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Welcome Remarks

AMRIK SINGH

PROFESSOR BOSE, DELEGATES and friends:

On behalf of the Inter-University Board of India & Ceylon I deem it a privilege to be able to welcome you all to this Seminar. The response to it has been much beyond our expectations. As many as 81 papers have been submitted. Quite some more persons who wished to participate could not be accommodated for want of space. All this has only one meaning The issue of examinations is a burning issue and needs to be explored in greater depth and realism than has been done so far. It is to be hoped therefore that this Seminar will be followed by a number of local and regional seminars and, furthermore, some of the recommendations made at them will be of a kind that can be implemented as well

During the last few decades our examination system has come in for considerable criticism. It has been described as a gamble, as a test of rote learning and not at all a test of anyone's ability The system does not encourage sustained hard work and everything depends upon one final test which if a candidate fails to pass means a year lost In terms of validity and reliability therefore dissatisfaction with the existing examination system has been growing apace. Various halfhearted attempts have been made to change the system and to make it more scientific and more reliable but these have not been particularly successful. There have been all kinds of sociological and other reasons why some of the attempts were foredoomed to failure. This however did not discourage everybody and several of them went ahead and tried to bring about certain changes.

Most of [illegible]
internal asses[illegible]
himself shall [illegible]
the teacher. At the same time, a number of safeguards were introduced For instance, it was said that the internal evaluation will not exceed a certain given percentage of marks. Despite this and other [illegible] fegua[illegible] he results

were disastrous, except here and there and in certain professional faculties. Today, more than anyone else, it is the students who are opposed to the system of internal assessment. They have seen the system being used erratically if not also arbitrarily. Having seen how non-academic considerations enter into the process of assessment and how results are inflated or deflated, as the case might be, there have been active protests by students in quite a few places. Outside the IITs and a few agricultural universities, there is hardly a university in the country today which can confidently assert that this system is functioning satisfactorily in respect of the wide mass of students, and particularly in the case of affiliated colleges.

As a matter of fact those that tried this experiment and abandoned it felt demoralised in the process. A kind of negative conclusion was drawn, in that a general feeling came to prevail that despite all its failings and imperfections the public examination was the best. If nothing more, it was at least non-subjective and nobody's bonafides could be questioned unless there was a large scale leakage and the canons of secrecy were violated. This happened here and there but remedial steps could always be taken. In plain words, our attempts at introducing internal assessment resulted in a further strengthening and indeed sanctification of the public examination system.

Up to a point the system of public examinations has so far held its ground. With the increasing pressure of numbers, however, the system began to break down and there are very few universities which can claim that there has never been a flaw or failure in its functioning. Intolerable strains developed everywhere and the best that can be said about any university in the country today is that it is coping with this situation with a fair measure of integrity and efficiency. Problems still continue to multiply however. It is not necessary to go into any details in regard to these problems. As long as we are all agreed that some of these problems are complicated, and maybe, intractable, and need to be solved, it is not necessary to dilate upon what the agenda of work before the seminar is.

In this connection two points of caution need to be made. One, our recommendations should not assume that ideal state of things which if it existed would make the recommendations unnecessary. In other words, to recommend that the student should be assessed by his teacher because this is the logical thing to do would be unrealistic. It would be unrealistic because not only does it represent a complete break with the existing system (and the majority would not accept it therefore) it also predicates a level of academic and ethical functioning largely on the part of teachers and partly on the part of students that just does not exist. This is not to rule out internal assessment altogether. Internal assessment may be there but with the safeguard as recommended by the Education Commission that the score in both cases should be shown separately. There are difficulties even in the way of this minimal reform but given the limitations this is the best that can be done in the circumstances.

There is a second point of caution too. Nobody should allow himself to believe that by reforming the examination system anything more than an important step forward would have been taken. The reform of the academic system is a bigger, much more comprehensive and therefore a difficult thing. It is important to underline this point because quite some people think, for instance, that if students could be allowed access to books

in the examination hall, copying would disappear as a phenomenon This is an oversimplified view of things. Copying and such other phenomena have their roots in our social and academic life and cannot be eradicated only by changing procedures etc For that purpose, fundamental social and economic changes are required to be carried out. This however is neither the time nor the occasion to dwell upon them.

It is clear from what has been said above that however we may object to it, the system of public examinations has come to stay That being so, I would like to submit that the focus of this seminar should be on how, given these limitations, the system can be made more efficient, more reliable and a better test of a student's real ability. This may strike some people as an unduly timid and unadventurous point of view. To that I would [illegible]

[illegible]

the other hand advocates measures and policies which cannot be implemented. The outcome is no other than a steady, inexorable worsening of the existing situation. This is precisely what has been happening over the last several decades. The solutions proposed have been in the nature of a counsel of perfection Since perfection is unattainable, nothing else gets done. In my opinion this is unpardonable Worse, it is an evasion of our responsibilities both as citizens and as academics Indeed I would say that in terms of our academic responsibilities, the situation can be met only by grappling with realities as they exist and as they can be changed The limitations of any change that we wish to effect are quite obvious and wisdom lies in staying within our limitations and then making the best of what is admittedly a bad situation.

While the situation is bad at every level, it is the least satisfactory in the case of the under-graduate examinations The numbers here are unmanageably large, mass copying has become an incredibly widespread [illegible] of a [illegible] there [illegible] atters should not be referred to. Only I wish to submit that let this seminar concern itself largely with the problems of under-graduate examinations and a subsequent seminar might take up the other related problems This is a point of view which is placed before the seminar for such decision as it might choose to take.

It seems reasonable to ask at this point what this seminar is likely to achieve. Will it only elucidate issues or will it also lead to some action on the part of universities? It is difficult to return a decisive answer to this question but two things may be said One, to elucidate issues is important and indeed preparatory to any plan of action. To that extent if our discussions help us to understand the nature and dimensions of the problem better that would be a step forward. But let it also be understood that this is only a small step forward. The bigger and the more decisive step is that whatever we recommend does get acted upon. The second thing I would like to say is that to some extent this will depend upon the kind of recommendations we make If these are of a practicable kind and do not involve a restructuring of procedures beyond a comfortable point, universities would be in a position to implement these proposals than otherwise Speaking for

myself I would regard this seminar to have been quite successful if the fo-
lowing two recommendations are made and implemented:

(*a*) greater use of mechanical equipment at the office level; and

(*b*) a marked improvement in the designing of question-papers.

There is a reason why I have picked out these two points for speci
mention. The first one I regard as almost unavoidable. No universit
that is required to deal with large numbers, say more than 15,000 studen
per year, can expect to ensure efficiency and accuracy without the use
mechanical aids. A few universities have already started using then
The rest need to be introduced to these machines. As a part of that intro
duction we have invited the IBM people to give a lecture-*cum*-demonstratio
to the seminar. It is hoped that the lecture would be found profitable b
everyone present here.

The second point involves some kind of a radical break with the existin
system but the reason I wish to highlight it is because this innovation can b
introduced without modifying the system structurally. The outlines of th
system would remain intact but the content of it would change. That i
why there are difficulties in the way of its implementation. These difficultie
should not discourage us, however. It is idle to hope that innovations ca
be made without having to make fresh adjustments. Only while working ou
these proposals we should have a fair measure of the difficulties that we ar
likely to encounter. In my judgment difficulties in regard to the re-design
ing of question-papers are considerable but not insuperable. My reason
for saying so will become clear presently.

Purely as a practical thing I venture to suggest that for the next fev
years most other aspects of examination reform might be ignored and al
attention should be concentrated upon educating the teaching communit
to accept this innovation. If there is a one-point programme of reform
as is being advocated, and if the resources of the whole teaching com-
munity are mobilised, it is not too much to hope that it would be possibl
to carry through this innovation.

Resistance to it would come from more than one quarter. The teaching
community would not welcome it because it would oblige the general body
of teachers to recast their whole technique of instruction. But perhaps thi
resistance can be overcome. The second part of the resistance would come
from the students. Given the existing academic situation the students are
not going to accept such a radical departure from the way things have been
managed so far. Here the role of the academic community will become
crucial. Without their active cooperation and involvement the thing does
not get started. But if that involvement is there, students will come to see
the utility and significance of what is sought to be introduced.

I am not linking up this proposal with the introduction of the semester
system—a complementry reform as many people would agree. But that is
because I would not like the issue of the design of question-papers to be
contingent upon the acceptance or rejection of any other proposal. If
both can be introduced simultaneously, that would be excellent. But if that
is not possible, this reform must still be given top priority.

This is not the occasion to go into the details of this innovation. But
perhaps it would be useful to add that the re-designing of the question-paper
would obviously mean only a partial use of the essay type question. Not

only that, the committees of courses which lay down the syllabus would have to be required to frame a large number of model question-papers, indeed as many as 20-30-40. These model question-papers can be made available to students at the time they seek admission. I can even visualise a situation where anyone or more of those question-papers which have been in the possession of a student for a long time are required to be solved in the examination hall. There can be another alternative plan upon which I propose to enlarge in the course of discussions whereby we can have a well stocked pool of questions out of which questions can be drawn at any time All these suggestions would go to the concerned groups for purposes of detailed discussion. The only point I wish to stress just now is that the seminar would come within a measurable distance of success if it could concentrate on these two issues, particularly in respect of the under-graduate examinations.

These are some thoughts which I have taken the liberty to present to the [illegible]

convinced that in terms of strategy, it is better to concentrate on limited objectives and then mobilise all academic and financial resources in pursuit of their implementation than to attack a multiplicity of targets all at the same time. I only hope that in the course of these remarks I have not in any way anticipated some of those things that Prof Bose proposes to say

In organising this seminar we have incurred a large number of debst I would leave it however to my colleague Mr. Anjni Kumar to refer to them in his remarks after Prof. Bose has spoken. I now request Prof P K Bose to give his Keynote Address.

Two

Key-Note Address

P. K. BOSE

INTRODUCTION

IN 1949 THE education commission headed by Dr. S. Radhakrishnan said, "We are convinced that if we are to suggest any single reform in university education, it should be that of examinations". Since then various committees were set up by the Governments and the universities to suggest the necessary reforms but uptill now very little has been achieved.

A comprehensive programme of examination reform was developed by Ministry of Education, Government of India in 1958 through its Central Examination Unit. This Unit was engaged in the task of bringing about reform in examinations in the country initially at the secondary stage, but ultimately spreading it downward to the elementary stage and upward to the university level. The two major goals of the programme of examination reforms were :

Improvement of Measurement Value : To make evaluation a more valid and reliable measure of students' educational achievement, in varied aspects, in respect of predetermined educational objectives.

Enhancement of Pedagogical Value: To make evaluation an instrument for producing the desired influence on various aspects of education and thereby to contribute towards their qualitative improvement.

To achieve these goals the programme of work was spelt out in five well defined work areas (1) research, (2) training, (3) extension, (4) development, and (5) publications. This programme continued for a decade but we are unable to notice its impact on the examination system in the country except marginally.

The University Grants Commission appointed in 1958 a committee of persons with special knowledge and interest in this subject to make a thorough study of the problems involved and propose remedial measures. This committee also gave its recommendations. During the period Dr.

B. S. Bloom of the University of Chicago was engaged in directing 'Work-shops' on evaluation in Secondary Education under the auspices of the Ministry of Education.

These endeavours also did not produce the desired effect on the exami-nation system. The same old system is continuing with practically little change and even where some steps have been taken, such as internal assess-ment, semester, etc. there also, ultimate result is not satisfactory.

should not copy in full any measure accepted by other countries ... each of these is bound to bear a family resemblance to the body of basic principles in the matter, specific steps to be taken to meet the situation in each country will necessarily differ

regarding their rights.

In 1947, the total number of students in the universities and colleges was about 2 lakhs (which is now the student population of the Calcutta University alone) and now this figure has increased to 22 lakhs Due to the increased political activity in the country attitudinal transformation has taken place amongst a certain section of students and teachers

Whatever reforms we propose to introduce will be vitiated if they ar... moment we find 'crisis of char... this connection I reproduce ... C Aiya, Director N.C.E R.T

"In the last two decades, we have, knowingly or unknowingly corroded the steel frame. It is now collapsing like a pack of cards Teachers of to... Their primary concern ... tained ... vaca... as ...

work. Intensity of work in the class is something only one hears about.

... the proposed reforms depends on the sense ... ators

PROPOSED CHANGES—SHORT TERM

make them intellectually alert and bring out their latent abilities. But unfortunately we treat examinations only for evaluation purposes.

When we discuss the problem of reform of examinations, we deal with large scale public examinations. It consists of two parts (*i*) operational and (*ii*) functional. Both are equally important.

At present large scale public examination is exclusively conducted by the universities. This practice should be changed to bring about decentralisation of powers and functions, placing the responsibility squarely where the functions are being performed, while retaining a number of supervising and regulatory functions on the central authority. The proposal is to transfer the task of conducting the preuniversity and degree examinations from the universities to the affiliated colleges.

The scheme that we have proposed is based on a new system of decentralisation. It is that the affiliated colleges should have more responsibility placed on them. They have much more intimate contact with the students than a distant university administration and their teachers are in constant touch with the boys and girls. So naturally these teachers and authorities of the colleges should be given the added responsibility for the conduct of examinations. Large scale copying in the examination hall has become a serious evil and unless it is checked, the whole examination system will break down. If the examinations are conducted by the colleges, this will secure greater involvement of the teachers in the examinations. Only when the teachers stand united and determined they will be able to stop the malpractices by their students. For universities like Calcutta it is becoming impossible to conduct the examination for such a large number of students. Decentralisation of authority as envisaged above will ease the situation to a considerable extent. There are no doubt a number of difficulties involved in this process but the difficulties can be surmounted with experience.

Large scale public examination may be regarded as group tests. The three important functions of educational tests are:

1. selection and distribution, in which tests are used as a basis for the selection of students for programmes;
2. diagnosis or prescription where tests are used as a basis for identifying the nature and extent of educational deficiencies;
3. evaluation where tests are used to assess the effectiveness of educational programmes.

The present examination system deals only with 3. Some attempts were made to construct tests for 1, 2 but that did not meet with success with the present number of students in the affiliated colleges it is difficult to conduct frequent examinations. Continuous assessments are necessary for identifying the nature and extent of educational deficiencies but the number of students and the environmental conditions prevalent in the country stand in the way. Some steps should be taken immediately so that the method of continuous assessment can be introduced in colleges. While considering this urgent problem we should bear in mind that this is one of the important reforms of examination which we cannot afford to overlook.

Evaluation in education is presently limited to large scale written examination. These written examinations suffer from some serious shortcomings (a) emphasis on memorisation,

(b) subjectivity.

(c) poor content average, and

(d) administrative issues

By taking remedial measures, some of the defects of the written examination may be removed. Questions set now mostly require recall of information and overlook other objectives. This defect can be overcome by the proper selection of instructional objectives and giving proportionate weightage to each of the objective for framing questions. Subjectivity in case of written examinations can be reduced by developing design of the question paper by the administrative authority. In the design specific directions should be given regarding the dimension of the question paper and the relative weights of the objectievs Poor content coverage can be improved upon by introducing short answers and objective type questions. For putting these into practice teachers should be more serious in their pursuits and a special research unit on examination should be created in each affiliating university. The whole job as mentioned above is a highly technical one, and can only be performed by a group of scientifically trained personnel. Before we can introduce such reforms in examinations, we have to make education more purposeful For this purpose the existing curricula and syllabi should be scrutinised and the corresponding changes be introduced in the teaching methods.

Of late we hear about open b... sult his book... answer. I ... in India. ... large number of examiners ... scoring key there will be wide variations in ma... this is due to the fact that the scale parameters of different examiners are different. This can be avoided to some extent if the marks are given on a 5 point scale *i.e.*, the present method of scoring by a fixed number is replaced by an interval score

On the whole a harmonious combination of questions requiring objective answers as well as answers of the essay type, oral examinations (when practicable) and assessment of departmental records would be the ideal

ROPOSED CHANGES—LONG TERM

I have indicated above some of my ideas regarding improvement of the esent day examination system on a short term basis. On a long term basis e should reform the examination ... that the present phasis only on ... By thus I do not an that ... is desirable to lay re stress ... ion. R... function of an exami- to bring ... their latent abilities. ...ion is to make students intellectually alert ... This aspect is often missed. Now the stion of pass/fail has assumed great importance and because of this, e is such widespread malpractice throughout the country.

According to me the universities should conduct examinations at the of admission and not at the time of leaving. All students should be a certificate describing their attainments in qualitative and quantitaerms without mentioning pass/fail on the basis of continuous assess-

Potential employers may if they so desire conduct special tests for tment We should all try to change the present mental attitude and

for this purpose we seek the co-operation of the Government and the general public.

This practice is being followed by several countries and it has met with success. In this connection I may quote a few lines from 'the Swedish System on Examination'.

"The question of pass/fail has been of very little meaning for more than 20-30 years in the Swedish school system. We have for many years in fact got rid of the problem of pass/fail and we have had all students ranged according to scale and they have all had their certificates so to speak".

I reproduce below the system of examination and marking methods in U.S.S.R.

(a) *Examinations* : An important form of evaluation of students' achievement remains the examination.[1]

At present examinations are held only twice—at the end of the 8th and 10th years of schooling.

Both the inter-stage exam—in class 8—and the exam for the G.C.E. are important events in Soviet school life though the system is not examination-oriented as it may be the case in other countries.

The subjects in which examinations are held (in oral and written form) are given in the following table.

TABLE

*Examinations in Soviet Schools**

Subject	Class 8		Class 10		Total number
	Oral	Written	Oral	Written	
Mathematics	+	+	—	—	2
Algebra and Trigonometry	—	—	—	+	1
Geometry	—	—	+	—	1
Physics	—	—	+	—	1
Chemistry	—	—	+	—	1
Russian language	+	+	—	—	2
Russian language and literature	—	—	—	+	1
History and Social Service	—	—	+	—	1
Foreign language	—	—	+	—	1
TOTAL	2	2	5	2	11

At oral examinations, students choose one from 25 to 30 so-called examination tickets which contain three or two questions. The questions are [illegible]ed by the Union Ministry of Education[2] and are circulated among schools about two months before the examinations are due.

[1]Few, perhaps, know that in the first years after the 1917 revolution, there were no examinations in Soviet schools at all: they were abolished by a government decree. In later years, on the other hand, students were to take examinations in almost each subject they studied.

*In national republics where there are also schools with local languages as the medium of instruction students are also examined in the mother tongue and literature.

[2]Except for tickets on the mother tongue and literature which are constructed by Education Ministeries of Union or autonomous republics.

... the officials of Educa-

nations.

... by the class teacher, who two teachers of the same in assessment in exami-

As one might have already guessed, current assessment as viewed in ... that examinations alone do not play the decisive role ... Therefore, ...lly expected. ... he candidate to have another go, or to mark the answer taking into account his past record.

Students, thus, are not unnecessarily fearful of examinations At the same time, examinations retain their role as a powerful means by which ... achieved Again, students themselves ... nally allotted to exami- ... al mark entered in the ... op student each "4" or ... significance: gold ... or "4s" in ... ower.

(b) *New Trends* : Though, within the scope for which it was intended, the system of evaluation practised in Soviet schools has been adequate, there have in recent years emerged factors calling for a diversification of the system

Marking : The system of marking the student's performance is rather simple It is a five-mark system, the mark "one" being the lowest while the "*five*" *being the highest. The lowest mark is however, used very sel*dom. The "3", roughly corresponding to "fair", is the pass mark.

At the end of a term (or semester in classes 9 and 10) integrated marks are allotted on the basis of marks for current work and written tests

SUMMARY

I summarise below the main points for reforming 'Examination'.

Short Term:

(*a*) Decentralisation of large public examinations should be accepted as *principle*.

(*b*) On the whole a test should consist of essay type and also objective type of items The structure of the question should be properly designed.

(*c*) Whenever possible the assessment should be on the basis of written, oral (whenever possible) and class records.

(*d*) Marking system should be changed from point to interval.

[4]The awardees, other factors being equal, have an edge over other candidates at university admission examinations

ng Term:

(*a*) Present method of examination should be replaced by continuous assessment, *i.e.*, laying more stress on diagnostic aspect than on evaluation.

(*b*) Assessment should be done by internal teachers.

(*c*) There should be no general 'Pass' or 'Fail'.

(*d*) All internal assessments alongwith the courses of study should be clearly stated in the certificate of completion.

(*e*) For fresh courses of study and for recruitment, special tests may be held, if necessary.

Three

Tools of Assessment

IT IS WIDELY assumed that human performance can be measured on a quant tative scale. In educational parlance, the term 'Assessment' usually refe to the process of allotting a quantitative value to student's achievement All types of achievements cannot be assessed by one single method. Sever methods of assessment are therefore used In technical terminology, the methods are called 'Tools of Assessment'

FORMULATION OF OBJECTIVES

Assessment cannot be accurately done unless it is known *what* is to b assessed. For this purpose, a precise formulation of the objectives of th educational programme is necessary The formulation of objectives is difficult but an indispensable step. The objectives can be classified in tw categories: (*i*) the content objectives, and (*ii*) the behavioural objectives

The content objectives should specify the course content to be covere in the class. The behavioural objectives should specify knowledge, ab

show the difference between the performances of the students who posses that ability and those who do not possess it. For instance, unless the ob jective "critical thinking" is specified in terms of improved performance, i is likely to be differently interpreted by different people.

The seminar had a good deal of discussion on the subject of the formu lation of objectives. It recommended that the respective board of studie should clearly define the objectives of education in each subject, course-wise in terms of course content and also in terms of qualities that a student i expected to develop on the completion of the course. The existing syllat ould be examined and modified, wherever needed, in the light of thes

objectives. for the formulation of objectives the boards of studies may convene seminars of subject teachers. It would be helpful if a few experts of testing are associated with these seminars.

As all the objectives may not be equally important, the board of studies should determine the weightage to be given to each objective in the examination.

SELECTION OF TOOLS

Once the objectives and their respective weights are determined, it would be easy to select appropriate tools of assessment. At present the following tools are mostly used in our examinations.

Paper-pencil tests : Paper-pencil tests are those tests which require students to write answers in their own language or to mark any of the already given answers in the text booklet. The following types of tests may be considered as paper-pencil tests.

Essay type test : These tests are considered appropriate for measuring such educational objectives as coherence of ideas and style of expression. They provide an opportunity to a student to project his personality. They also enable the examinee to follow the thinking process of the student's mind. But they suffer from several limitations. For instance, marking in essay tests is known to be subjective and less reliable and the course coverage patchy as well as inadequate. They encourage selective study. Several Indian studies have shown that in traditional essay tests, students can answer the required number of questions even after neglecting approximately three-fourths of the course. Further, to some extent, achievement in essay tests depends on speed in writing and good handwriting. It was probably in view of the limitations of essay tests that the Radhakrishnan Commission (p. 336) observed:

> "The essay-type of examination which prevails at the degree stage, as elsewhere, suffers from some major defects. It has usually no clearly defined purpose; it is, therefore, invalid. Its sampling is very arbitrary and limited; it is inadequate. Its scoring is subjective and therefore not reliable."

To make the best use of the essay test the following measures have frequently been suggested :

(*i*) Specificity in questions. That is, the question is to the point and does not permit a student to write of anything other than what has been asked.

(*ii*) Elimination of choice.

Short-answer/structured-type test: The structured-type questions re- students to give short answers to each of several questions all con- ing the same topic. Because of the special nature of these short ques- ons some people give them a distinct nomenclature "structured-type". Others include them in the broad head of short answer questions. These questions inherit the characteristics of the essay test in the sense that they also provide freedom of response. These tests have several advantages. Since they require short-answers, they cover a wider area of the course content and objectives than is usually covered by the traditional essay test. The marking in these tests is usually less subjective. They have been found to be as reliable as most objective tests and are probably more valid for

some purposes Most experts on testing feel that there is no empirical evidence to suggest that the qualities assessed by essay tests canot be assessed by short-answer tests

OBJECTIVE TESTS

Most of the educational objectives currently measured in our examinations can be assessed by more extensive use of objective items In deed carefully designed objective items may measure even such higher mental abilities as critical thinking, appreciation, etc. This has been done quite extensively in other countries and there is no reason to think why it

hardly any choice in these tests and this imposes a kind of intellectual discipline which is unique in itself in the present conditions

far wider
-answer
ritics of
to ex-
suggest
that the ability to select the right answer is the samething as the ability to compose the right answer.

Having considered the pros and cons of the use of various types of paper-pencil tests, the seminar came to the following conclusions:

(1) Every university should have a phased programme of reducing the predominance of essay-type questions. This can be done

nature of the subject and the level of the course and this aspect be left to be determined by the universities.

(2) The boards of studies may suggest the principles on the basis of which the examiners will select the various types of questions
facilitate the task of
types of questions
be provided by the

(3) Evidently these reforms cannot be carried through forthwith It stands to reason therefore that the improvement in the designing of question-papers should be given the topmost priority. For this purpose, a phased programme of improvements spread say over five years may be drawn up

As a preliminary step, it is strongly recommended that traditional essay-type questions may be broken up into short answer and structured type. As a transitional step however, certain other steps also need to be taken. These may be listed as follows:

(4) The convention of not repeating questions from the question-

paper of preceding years encourages the practice of selective study among the students. This is academically unsound and needs to be discouraged.

(5) Another measure which contributes to the habit of selective study is the provision of a large number of alternatives in the question-papers. While sometimes there may be sound academic reasons for such a practice, it is particularly in the essay-type questions that this practice is most often encountered. In objective type, short-answer type and structured-type tests the element of choice is almost non-existent. Since the intention is to minimise the element of choice, every care should be taken to ensure that the number of alternatives is restricted and each alternative question (wherever found necessary) assesses the same type of ability, requires approximately the same length of answer and has approximately the same difficulty and discrimination value.

(6) It would be helpful if the length of the probable answer in terms of words is fixed for essay-type questions.

(7) As a corollary to the foregoing it may be emphasised that instructions in the question-paper should be so clear and so precise that there is no room for different interpretations either by the students or by the examiners.

(8) As far as objective-type questions are concerned, it is advisable to administer them separately and strictly within the prescribed time limit.

POOL OF QUESTIONS

No reform in examinations is possible unless teachers as well as students are involved in very large numbers. The existing system is so firmly established that to change it even in minor matters requires enormous effort. And if the change intended to be carried out relates to the re-designing of question-papers, the amount of resistance encountered will be extraordinarily all-pervasive and persistent. To (*a*) overcome these difficulties, to (*b*) improve the tone and content of teaching and to (*c*) facilitate changes in curricula, a new idea was mooted and it deserves serious consideration.

The idea is not all that new, in a manner of speaking. Today the syllabus is laid down by a committee of courses consisting of a small number of people while the actual teaching is done by the wide mass of teachers. (The situation being what it is, it is difficult to visualise a change in it in the near future). In regard to the syllabus however, it has already been suggested that in addition to what is done at present the objectives of instruction should be formulated clearly and in some detail. This would be a break with the existing system. Perhaps this can be carried out relatively easily.

The next step is more difficult and more open to controversy. According to the prevalent practice, a paper-setter in a certain subject is appointed. He sets the question-paper and sends it to the university. In certain cases it is moderated. In certain other cases it is printed without anyone having a further look at it. The crucial change proposed is that the paper-setter while drafting his question-paper need not operate exclusively on his own resources. Instead his main job should be to select questions with due em-

phasis on spread, internal choice, relative emphasis on different types of questions, etc. from a pool of questions maintained by the university on an on-going and continuous basis. The mechanics of the arrangement can be somewhat like this.

The detailed syllabus (which will include a clear formulation of the objectives of that course) as drafted by the committee of courses will be circulated to all teachers. They, in turn, will be invited to frame questions in relation to the syllabus There will be no restrictions on the number of questions that they may frame. In fact the larger the number of questions framed, the more extensive will be their participation. All the questions thus framed will be sent to the university office and presented to the committee of courses at its next meeting. Obviously quite a number of these [illegible]

having it in a haphazard manner. In other words, pre-testing of questions would be an important condition which must be fulfilled before these are included in the pool.

An important aspect of this scheme is to treat it not as a once-in-a-lifetime-affair. That would be to completely misunderstand the objectives of the scheme. The scheme requires, as a matter of fact, that, as a part of their instruction, the teachers should keep on framing questions in collaboration with their students and that this exercise is undertaken not only once in a year but repeatedly and at intervals Indeed some of the questions framed earlier can be rejected and new ones framed after some time. This will indicate not only a greater sense of participation on the part of teachers and students but also a deeper understanding of the subject on the part of both.

These questions [illegible] various categories suggested [illegible] s, short-answer questions, st [illegible] deed all [illegible] pool of [illegible] be also [illegible] As a matter of fact, it is visualised that the larger the number of questions the easier it would become to carry through any innovations that might be decided upon. Sometimes the number of such questions may run to hundreds and this, so to speak, would be a measure of the success of the scheme

Most crucial to the whole scheme is the involvement of students in the formulation of questions. Teachers are accustomed to designing questions for their students as a part of their normal work. What is proposed now however is that students too, and in larger and larger numbers, should be associated with this task. This can be done in more than one way. Teachers can formulate questions and try them out on their students Wherever necessary they can amend them in the light of students' performance and criticisms received. Alternatively students themselves may propose questions and those can be tried in the class and finally adopted for inclusion in the proposed pool of questions. This will also help in the pre-testing of questions referred to above.

Should these questions be regarded as completely confidential or should hese be public property? Opinion was divided on this question. Those n favour of making them public maintained that if a student knew the answers to all the questions in the pool nothing better could be expected rom him. Others countered by saying that in regard to certain types of questions, mainly relating to application of knowledge to new situations, keeping them confidential was desirable. No unanimous decision could be arrived at in the matter. A kind of consensus was however reached whereby f the pool of questions was extensive and the number of questions included was several hundreds (thousand if they are of this objective type) nothing would be lost by making them public.

As should be evident from the details of the scheme (and these are mostly tentative in character), the principal responsibility for initiating and carrying he change through would devolve upon the committee of courses. In other words, leadership has to be provided by a group of knowledgeable and forward-looking people. If a few of them can come together in a certain committee and are vested with the power of laying down the syllabus, formulating the objectives of study, processing the very large number of questions received from teachers and students, the most decisive step in favour of change would have been taken. But if anyone of these pre-conditions is either missing or if the persons involved are weak in motivation and strength, the possibility of accomplishing the change would to that extent diminish.

Two further points may be made here. Since there will be a large range of questions to choose from, the task of the paper-setter would be considerably simplified. Instead of having one or two question-papers set by him t should be perfectly feasible, and convenient as far as he is concerned, to have a larger number of question-papers set. Any one of these chosen at random can finally be printed. Another variation on this proposal could be hat in order to minimise the chances of mass copying, a problem which has assumed serious proportions in recent years at certain places particularly at he under-graduate level, a number of different question-papers (with almost he same difficulty value) are distributed simultaneously to examinees in a hall. Since students sitting next to each other would be solving different question-papers, the chances of their communicating with each other would diminish, if not disappear.

Whatever has been said above applies to other forms of testing, such as practicals, oral tests, etc. Whether the question-papers thus set are also required to be moderated or not is an issue that needs to be examined. If t is maintained that the pool of questions has already been sifted and, in a sense, moderated by the whole committee and that the question-paper is drawn primarily from that pool of questions, moderation does not seem to be all that incumbent. On the other hand, it can be argued that moderation s concept of much wider significance and therefore these question-papers also ought to be moderated. On balance the seminar was in favour of the latter point of view.

MODERATION

Whether the foregoing proposal of a bank of questions is implemented by every university or not, it is important that before a question-paper is said to have been finalised someone other than the paper-setter

should carefully scrutinise and review the question-paper. This is im[illegible]
tant because moderation of question-papers requires a special kind of s[illegible]
both in terms of knowledge of the subject and in judgement. Instances
not unknown where question-papers have been criticised for all kinds
reasons. In certain cases reasons are easily identifiable. Sometimes, f[illegible]
instance, questions get included when this is not justifiable either
terms of the syllabus or in terms of the coverage of the syllabus. Ther[illegible]
can be a number of other points of criticisms as well into which it is no[illegible]
necessary to go at this stage.

What is sought to be em[illegible] is that without the right kind of bala-
nce and judgem[illegible] r is competent to exercise, the question
pape[illegible] exactly of the right standard. While
it is r[illegible] of co[illegible] standards. [illegible] o be precise about it, there is also the element
[illegible] Are question-papers set at one university ap-
proximately of the same standard as those in another university with which
its degrees are sought to be put on par? First-hand knowledge of standards
and practices in other universities therefore is one of the essential attributes
of anyone who is entrusted with the responsibility of moderating question-
papers.

Not all universities in India and Ceylon provide for moderation. The
general feeling at the seminar was that wherever such a provision does not
exist it ought to be introduced. The principal jobs of a moderator may be
defined as follows:

(a) He should ensure that the question-papers set in that university are approximately of the same standard as those in other universities with which its degrees are usually equated.

(b) The paper-setter neither over-emphasises nor under-emphasises any part of the syllabus and that the objectives as laid down by the committee of courses are faithfully observed in practice.

(c) In respect of distribution, internal choice, balance among different types of questions (such as essay-type, short-answer, etc.) clarity and precision of instructions and all such other matters, every little detail has been taken care of.

Evidently these responsibilities can be discharged only by a person who
[illegible]volved with the teaching of students. This is not to rule out external
[illegible]iners altogether. Certain universities have a board of moderators
[illegible]ms of composition these boards have at least one internal examiner
[illegible]e external examiner. There can be an additional one or two members
[illegible]t is a matter of detail.

[illegible]e of the proposals made as a part of the pool of questions was that
[illegible]estion-papers are prepared quite a number of them must be got
[illegible] at the same time. Once that proposal is accepted, the board of
[illegible]rs need not be called upon to meet so very often as might be sug-
[illegible] the foregoing recommendations. In point of fact the board may
[illegible]e membership of two people, one internal, one external, whereas
[illegible] the members can be rotated so as to be able to deal with the
[illegible]els of examinations, undergraduate, honours and master's degree.
[illegible]rds, the very same external examiner who is called to attend the
[illegible]e board of moderators can be asked to spend a little more time
[illegible]ng additional question-papers. In the case of internal exa-

miner/s, there should not be any serious difficulty with regard to his/their availability.

REVIEW OF QUESTIONS

A word about the review of question-papers set also seems to be called for. After the examinations are over the members of the board of studies and the Examination Research Unit of the university establishment which is one of the strong recommendations of the seminar should review the questions. This may be done from two points of view. One, an assessment of the question-papers set should be undertaken. Was everything as laid down by the boards of studies and in terms of the formulation of objectives? Was moderation successful and skilfully conducted? To what extent the phased programme as drawn up is being fulfilled in practice? There can be a whole host of issues which need to be discussed between the boards of studies and those vested with the responsibility of conducting research in the system of examination in a university.

The second point of view from which this review can be undertaken is that of the performance of students. This will reveal a good deal about the kind of instruction and guidance that they had as also the kind of preparation that they made for the examination. To review the question-papers only from the preceding point of view would be somewhat misleading. The performance of students is equally important. As a matter of fact the review from this point of view might also conceivably involve the participation of the wider mass of teachers. It is they after all who are doing the actual teaching. Unless the results of this review are therefore brought to their notice and they have a feeling of participation, the results are not likely to be particularly useful.

The results of such a review must be disseminated as widely as possible. Paper-setters, moderators, teachers, students, indeed everyone concerned with the whole process of education, should be informed of these findings. The more important of these findings may be published in the annual report of the university as well.

Paper-setters : At present the boards of studies perform two functions. One relates to the framing of syllabi and the other to the appointment of paper-setters and examiners. For reasons both historical and sociological, the second function receives more attention. It is idle to expect that a mere recommendation by a seminar would change this state of affairs. It is important nonetheless to emphasise in this context how the appointment of paper-setters needs to be viewed differently.

As will be noticed, a distinction has been drawn between the appointment of examiners and that of paper-setters. Examiners have to be appointed out of those who are engaged in teaching. While they too will require some orientation in the new modes of assessment, the principal responsibility of implementing the changed policies will fall upon paper-setters. To appoint the right kind of paper-setters therefore is of crucial significance to the success of the whole scheme. So far, the chief consideration in most cases is the seniority of the teacher concerned. Without decrying this practice in a wholesale manner it needs to be stated unambiguously that this consideration will have to be abandoned if the re-designing of question-papers is to be made effective. Only those people who are in tune with the new

have been recommended above.

To some extent the situation will differ in respect of under-graduate and post-graduate classes In working out guidelines for action therefore this aspect of the situation may be given its due importance

TRAINING OF PAPER-SETTERS AND MODERATORS

As of today, the number of people who are conversant with the new techniques of examinations is not large While many are vaguely aware ... o change our system of examination they ... When it comes to re-designing question- ... number would have the requisite know-ledge or training. But if the system is to be changed a very much larger number of teachers woud have to be given the requisite training For this purpose some organisation has to undertake the job of training paper-setters and moderators.

... task would be the Cen- ... the last chapter But ... , or maybe even after that, the UGC by virtue of its resources would have to play a crucial role in ...

Board can undertake to have such a manual prepared

BOOKLETS ON TESTING

Most of what has been recommended here is unfamiliar to teachers as well as to students Unfamiliarity provokes a kind of resistance which has to be overcome before innovations get widely accepted. This is as much true of the system of examination which is under discussion as of several other things in the academic field. The first responsibility of the proposed Unit should therefore be to educate all those who feel committed to the existing ways for no reason other than this that they *have not known anything different. Once this state of unfamiliarity is over*-come further progress becomes much easier. A tentative suggestion in this regard was one in respect of the pool of questions. Yet another can be a systematic campaign through books, pamphlets, seminars, lectures, etc. to inform all those who at present are un-informed.

An important role in this campaign can be played by boards of studies in various subjects. If they formulate their objectives clearly, prepare model questions and in a few cases also model answers, and these are put in the hands of students as well as teachers, a crucial step forward would have been

taken. Most of the boards of studies today function casually as also spasmodically. This needs to be changed. Instead, the boards of studies should be required to assume the role of the prime agents of change.

It is naive to imagine that other countries which have carried through some of these changes did not encounter resistance. Resistance to change is unavoidable, unless it can be overcome through planned and systematic efforts to combat inertia. Preparing these booklets on Testing and circulating them widely and involving both students and teachers in large numbers is a pre-requisite for any change that has to be introduced. The seminar therefore attached the highest importance to the preparation of such booklets, their dissemination as well as their extensive use.

PERFORMANCE AND ORAL TESTS

There are certain educational objectives which cannot be tested legitimately as well as adequately by paper-pencil tests. Ability to take part in discussions and skill in handling instruments are such objectives. In order to assess a student's achievement in respect of these objectives, tools like practicals, tutorials, dissertations, seminars, etc., are used. Owing to the very nature of such tools these are, furthermore, considered appropriate for purposes of internal assessment. And appropriately too, the use of these tools is open to the same criticisms as is usually advanced against the system of internal assessment. While the system of internal assessment would be discussed in some detail in the next chapter, performance tests, at least in one regard, are imperative. No science student can be said to have learnt even the elements of his subject unless he has carried out experiments with his own hands in the laboratory and unless he has been evaluated with regard to the skills that he has acquired through a practical examination.

Practicals : As a matter of fact it is universally agreed that experimental work is vital in the learning of any science and applied science course. Theoretical knowledge and experimentation to test and verify its validity are complementary to each other. All scientific study is based on observations and collection of meaningful data. Skill in observation and the ability to interpret the data thus collected as also the ability to design and conduct experiments and the development of manipulative skills are some of the objectives of training in practical classes. The preparation of scientific and technical reports is still another allied objective of such training. The assessment of practical work therefore needs careful consideration. Since this aspect will be taken up elsewhere in greater detail, no more need be said here.

Dissertation : Quite a few universities permit students at the post-graduate level to write dissertations in lieu of one or two papers. Usually this option is allowed to be exercised only in those cases where the student already has a good record of work. That is because writing a dissertation is useful training for students in the field of research. But before serious research can be undertaken it must be ensured that in terms of his stock of knowledge and understanding the student is well-equipped for receiving that training. In plain words, it is not the average kind of student who should be encouraged to write a dissertation but only those who are distinctly above average and to that extent can profit from this form of training.

Viva-V... ...ich form a part of ... certain universitie... expound ...w. These ... respect of ... d is not all ... r a student is poor, average or brilliant, this tool of testing is a perfectly valid and useful tool.

The objection to it, and it is a serious one, comes from another quarter When the number of students examined is large and the time at the disposal of the board of examiners is somewhat limited, as is usually the case in regard to both these factors, the *viva voce* test tends to degenerate into no more than a ritual Students appear before the board of examiners, are asked a few questions which neither probe into their stock of knowledge nor draw them out in terms of their depth of study and the matter is left at that. In such a ...

does not happen.

There is another important aspect of the matter too Cases are not unknown where the paper-pencil test of students and their *viva-voce* test have no correlation whatsoever with each other. In certain cases this may be academically justifiable. But in quite a number of cases, and these are more numerous than otherwise, due academic justification does not exist and the absence of this co-relationship is owing to factors that do not bear too close a scrutiny. In plain words, the existing social realities are not in favour of *viva voce* test being used either extensively or uniformly

What is to be done in this situation? To decide that *viva-voce* tests be abolished altogether would be an extreme step. In certain universities these tests are being conducted satisfactorily and it would not be fair to object to this practice The seminar therefore felt that *viva-voce* tests may be organised only in terms of certain safeguards and in respect of certain examinations. If these precautions are not taken abuses are likely to result which in their dimensions may be so serious as to discredit the whole system of *viva-voce* testing. This issue will be taken up again in more specific terms in the next chapter which deals with assessment.

OPEN BOOK TESTS

In a manner of speaking, open book tests are also one of the performance tests. Unlike most other tests, the student has free access to books, documents or any other material which he may require in order to be able to solve the questions set to him The questions do not demand rote learning; instead they demand the ability to discriminate and judge. What the student therefore does is not to reproduce any material which can be conveniently found in a book or a document In fact he consults various books and documents, establishes for himself the relevance of ...

ntradictory facts. That all this is done with clarity and conciseness 'll enhance the quality of his answer.

As should be apparent, this is a kind of intellectual skill which is dis- ayed mainly in those higher ranges of argument and analysis which are not ithin the reach of every student. It is only the distinguished students, ›erating mainly in fields like law, accountancy, business management, ope- tional research and such other disciplines that are expected to have this nd of skill.

To jump from this plane of thinking and to go on to suggest that open ›ok tests should be permitted to the vast mass of students even at the ıdergraduate level is to completely misunderstand the scope and purpose 'open book tests. These tests are meant to test the higher abilities and not provide an alibi for poor instruction and lax conduct of examination. ver the last few years, as cheating in examination has become more and ore of an academic and social menace several ingenious people have come rward with the suggestion that open book tests would solve the problem. ›r reasons stated above, the suggestion is both puerile and pathetic. To :lieve that a tool of assessment even if misapplied can lead to the right kind ' assessment is faulty logic. It is important therefore to seek to analyse e nature of assessment and under what conditions it ought to be conducted. ıis forms the subject matter of the next two chapters.

Four

Assessment

THE THREE ESSENTIAL characteristics of a good examination are validity, reliability and usability. An examination is valid when it measures accurately whatever it is supposed to measure It is reliable when it measures accurately whatever it does measure (An examination may be measuring accurately something else than what we want it to measure In that case, it is reliable but not valid.) An examination is usable when its use is feasible in the existing situations

THE PUBLIC EXAMINATION SYSTEM

It is evident that the public examination system which is the one with which we are most familiar in India & Ceylon does not fully satisfy these three essential characteristics. In terms of validity as well as reliability it is open to serious objections. The validity of public examinations as predictors of perfor
been found to
nations as rep(
by experts for the purpose of comparing individual achievements. Most of these criticisms have been documented by a number of studies undertaken by various people. It is not necessary at this stage to go into them in any detail. Those who are curious can refer to the extensive literature available on this subject.

Its usability however is not as much open to objection, provided the appalling failure rate is not regarded as an inseparable part of the system Nor should the frequent student trouble be regarded as a part of it. Strikes and disruptions of examination schedules have become a common phenomenon but it would be too much to say that these are entirely traceable to the system of public examinations. For more than a century this is the system that people have known Indeed so firmly entrenched has this sys-

tem become in the public imagination that the vast majority are unable to conceive of anything different.

During the last couple of decades those who wanted to escape the tyranny of this system advocated extensive use of the internal assessment system. While more would be said about this system a little later, it is enough to say here that this system of assessment even when combined with the public examination system has failed to win widespread acceptance or inspire general confidence. In the event, the public examination system has got further strengthened. To seek to change it does not seem to be a very feasible proposition therefore.

Two factors, one historical and the other sociological, have contributed substantially to the strengthening of this system. For historical reasons higher education in India has expanded largely through increase in the number of colleges. As a matter of fact, the colleges were established first and the university departments came much later. Right from the beginning therefore, the primary job of the university came to be conducting examinations for students enrolled in different colleges. And precisely because they were in different institutions, even though the syllabus followed was the same, there were variations in the quality of teaching. A public examination provided a common scale to measure the performance of individuals in these different colleges. In one sense, this prevented standards from going down below a certain level. In another sense, it also prevented standards from going up beyond a certain level. This is a limitation which is built into the system. At the same time there is no getting away from the fact that today there is virtually no other index available of a student's competence than his marks in the public examination. Why this should be so can be understood with particular reference to the sociological reasons, analysed below, for the dominance of this system of examination.

The public examination ensures anonymity. This means that, barring a few lapses here and there, the identity of the student remains unknown to the examiner. In this situation the student neither gets the advantage of being known to the examiner nor the disadvantage of being penalised because of something unacceptable in his person, caste, community and such other factors. It is this dependability of the public examination which has won for itself a position of pre-eminence. Attempts to change it invariably run into difficulties because the moment the identity of the student or of the examiner is known, the objectivity of assessment appears to get vitiated. This has become so much a part of the Indian educational scene today that despite the low levels of validity and reliability of the public examination and its marginal strength in terms of usability the system has become firmly rooted in our country.

The general consensus of opinion at the seminar therefore was that without decrying other methods of assessment, it should be recognised that the system of public examination has come to stay and that whatever improvements and innovations are to be carried out the attempt should be to do so within the framework of this system. More specifically, the public examinations should be enabled to become more comprehensive so that they cover almost all important outcomes of education and, more important than anything else, measure learning rather than cramming. This can be done by (*a*) re-designing question papers, (*b*) changing the techniques and tools of examinations and wherever feasible, (*c*) supplementing the system with other

systems and modes of testing—say the semester system and internal assessment.

THE SEMESTER SYSTEM

Ideally a student should be judged on the basis of his performance throughout the entire period of his study. Amongst other things, this will ensure that a student is not judged by his performance on an inadequate sample of questions at a particular moment of time Rather he should be judged on the basis of a large number of questions spread over a certain span of time so that the mode of assessment does not work to his disadvantage. To remedy these limitations to some extent most universities in other countries use the semester system.

The essence of the semester system is that the academic year is divided into two or three sessions, each one of which is called a semester. (The basic difference between the words term and semester lies in this that at the end of a semester an examination is held while the word term simply connotes a division of time The word semester also indicates that a certain unit of course work has been completed) The syllabus lays down the details of work for each semester, the permissible combination of courses and the number of courses required to be passed to get a degree. Each course is a self-contained unit. After each semester there is an examination. A student who fails in a course is required to pass only that course and not all the courses studied in that particular semester For the benefit of those students who fail in a course or want to study additional courses, instruction is arranged even during vacations. In certain universities the summer vacation is described as the summer term, the idea being that academic work goes on throughout the calender year. Those who fail to keep up with the pace of work in the course of the academic year or wish to cover the course in a shorter span of time than the rest also attend the summer term.

The two basic advantages of this system are that the work-load of the student is even throughout the year and, secondly, practically no one fails. This is not to suggest that everyone who starts a course is passed as a result of the test. It only means that failure in one course does not put the student back by six months or a year If a student has failed he sits for that examination at the end of the next semester or the one after that. The incentive to work harder therefore is built into the system and there is a disincentive against becoming slack, irregular or negligent. Sometimes it may mean that a student does not get his degree in the minimum period required but on the whole the loss of time is so nominal that once a choice has been given very few students prefer the existing system to the semester system.

In order to ensure the successful working of the semester system certain problems have to be anticipated and solutions sought in advance. For instance, teaching has to begin as soon as the semester starts. To lose even a few days of teaching can hurt a student. Anyone who joins late will hardly have enough time to prepare for the course. Secondly, the splitting up of courses into several units may lead to compartmentalisation of knowledge. Care has to be taken therefore at the planning stage. Nor can planning be carried out once for all Every new experience requires to be assimilated by the teachers so that courses once designed do not become tools of tyranny which can happen if academic flexibility has not gone into the designing of courses. Yet another minor problem can be the preparation of a

suitable time-table so as to provide for the teaching of the various combinations of courses. But this is a minor difficulty and can always be overcome.

Outside the IITs and certain specialised institutes only a few universities are using the semester system. The experience of these universities is not exactly the same however. In some universities the system has given encouraging results. In others there are problems and tensions to which answers have not been found in all cases yet. Most of these problems arise from the fact that not only are students required to work harder and throughout the year, the teachers too are required to keep up the same pace of work. To the extent that this happens the experience of the introduction of the semester system is altogether favourable.

The seminar felt that the experience of these various universities needs to be analysed in some detail. As a part of the follow-up of this seminar, the Inter-University Board might set up a small committee to undertake such a study. Meanwhile there is enough evidence to show that this system needs to be introduced on a much more extensive scale than has happened so far.

INTERNAL ASSESSMENT

In contradistinction to the system of public examination, the system of internal assessment of students by their teachers was introduced at a number of universities in recent years. The American influence in this respect was unmistakeably strong. The number of those who have attended American universities for their advanced work or have accepted teaching positions there has been on the increase of late. The number of American educators who have visited India in the last few decades has also risen steeply. As a result of this growing two-way traffic and increasing concern with regard to the validity and reliability of examinations in India, the inference drawn by most people concerned with this problem was that the tyranny of the public examination should be minimised and greater weightage ought to be given to assessment of students by their teachers. After all, what could be more natural and more academically sound than this that those who teach also examine.

The gap in theory and practice however is startlingly wide. Several universities embarked on this new scheme with fervour and enthusiasm. Except for a handful the rest have had to temper their enthusiasm with bitter experience. This new system has succeeded only in those places where the student-teacher ratio is favourable, the quality of students as well as teachers is distinctly above average and the university authorities functioning through the academic council or some equivalent agency have been able to keep a close and vigilant watch on the functioning of the system.

Wherever this kind of vigilance has not been exercised the results have en unsatisfactory. In certain cases students have mounted pressure and sed other questionable means to influence their teachers. In a number of cases, teachers on their part have shown neither stamina nor the required degree of integrity and have succumbed to pressures. In certain other cases teachers have used this power over students in an arbitrary, wilful and oppressive manner. This has been done in two ways. Sometimes those who deserved better had been marked down. In other cases, certain undeserving students have had their marks inflated to such an extent that others who had been assessed fairly, ultimately came to develop a grievance. The

upshot of all this has been loss of faith in the objectivity of the teachers and,
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It needs to be stated at this stage that despite all these negative features
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the number of students at the post-graduate level is smaller and the student-teacher ratio is normally satisfactory. For another the quality of students as well as teachers at that level is usually better than at the under-graduate level Even these two favourable factors however failed to ensure uniformity of assessment in those cases where these post-graduate students were divided over several colleges As a matter of fact the general practice has been that the more conscientious the college, the more strict it is in its assessment of students Consequently the better students came to be judged, relatively speaking, more strictly than the rest who were not so academically good. This led to all kinds of imbalances and frictions and the system therefore failed to function effectively What could not function effectively at the post-graduate level could hardly function at the under-graduate level So as stated above, the general experience has been that this system while completely admirable in every respect was beset with all kinds of problems

Before concluding its deliberations, the seminar resolved as follows

"As things have evolved the system of public examinations has come to stay. Most recent attempts at changing the system have been concerned with introducing internal assessment progressively In principle, the seminar is in favour of internal assessment. Its large scale introduction however would be possible only after adequate preparations are made and necessary administrative safeguards are provided. The seminar therefore affirms that most of the innovations that can be introduced have to be either within the framework of the public examinations system or through a judicious combination of this system with the internal assessment system."

The foregoing discussion suggests that while internal assessment will be used sparingly and by those institutions which can take all appropriate precautions against its misuse, the vast majority of students will continue to be assessed by the public examination system. At one level the evils of this system can be moderated by dividing the academic year into two or three semesters and adjusting the process of instruction accordingly. At another level, it is also important to improve and refine some of the techniques of public examinations where the numbers involved in any case are fairly large. Specifically, attention needs to be given to issues like scoring, scaling, moderation of results, grading, and such other matters

SCORING

'Scoring' means the process of allotting marks to students' performance in examinations. This process can be categorised under two broad headings (*a*) where students are required to compose their responses and (*b*) where they are required to select one of the responses already given in the

question-paper. The essay-type questions, structured questions and short-answer questions belong to the first category and the objective-type questions to the second category. Because of their very nature, the first type of questions suffer from an excessive element of subjectivity. However the magnitude of the subjectivity can be significantly reduced by improving scoring techniques. The following suggestions made by the seminar are directed towards this end.

(*a*) In addition to setting the question-paper, the paper-setter should be required to give detailed guidelines for scoring answers. In case of numerical problems detailed solutions to the problems and scores to be given to each solution need to be indicated.

(*b*) To refine the scoring scheme and to make it more comprehensive the various examiners ought to be brought together alongwith the paper-setter or head-examiner as the case might be. At such a meeting, apart from general discussion, each of the examiners would be asked to examine a number of the same scripts independently. After that the ensuing discussion would naturally be specific and wherever there are differences of approach and opinion these can be settled.

(*c*) The job of the head-examiner after such a meeting would be to ensure that the scoring scheme, described as above, is strictly adhered to by the examiners working under him. If the examiners can be brought together to work at one place under the supervision of the head-examiner, that would be excellent. This has been done at a number of places and need not be regarded as a counsel of perfection. But if this cannot be done the head-examiner should be required to review at least 5% of the scripts scored by every examiner. If the number of examiners is large, additional or deputy head-examiners can also be appointed.

(*d*) To ensure that the scoring scheme is followed faithfully it is necessary to place a limit on the number of scripts to be examined by each examiner. Something like 300 scripts in 10 days at the under-graduate level seems appropriate. At the post-graduate level however 250 scripts would be more reasonable. This recommendation assumes that the examiner is not attending to his teaching and other responsibilities during those days.

(*e*) In order to be able to enforce this limit the university office would have to do advance planning. As soon as the list of candidates appearing for a particular examination is finalised, the number of examiners required can be worked out accordingly.

(*f*) Properly speaking, each script should be examined independently by two competent examiners. This has not been found very feasible however at the under-graduate level. At the post-graduate level this has been done successfully by a number of universities and the system is worthy of serious consideration.

(*g*) When two independent examiners award two different sets of marks to the same script, the question arises how this difference is to be resolved. This is a matter that requires further research and the seminar was unable to make a definite recommendation. Perhaps this could be one of the tasks that the proposed Central Unit could take up on a priority basis.

None of these suggestions is completely novel in so far as each one of them is being followed by some university or the other. Several more can also be thought of to cope with the various situations as these arise. It must be recognised however that even when all precautions have been taken the subjective element would not have been completely eliminated This is inherent in the assessment of essay-type questions Indeed as long as our question papers continue to be traditional in their structure and emphasis, the evils of the examination system can only be minimised, not completely eliminated.

CHECKING OF MARKS

When the number of scripts handled runs into hundreds of thousands, as happens in respect of a large number of universities, exceptionally stringent precautions have to be taken against laxity of functioning. One of these precautions is to ensure the thorough checking of marks in respect of each script and each question. The checker's job should be to see that no ques- [illegible]

left out and no irregularity remains undetected Mistakes, if detected, must be brought to the notice of a scrutiny officer (or whatever be his designation) so that he can check the script over again. Where both are convinced of the mistake/s, necessary correction/s should be made under the signature of the checker and counter-signature of the scrutiny officer. Where a question has been left un-marked, the script should be returned to the same examiner, or the head-examiner. Necessary corrections in the marks-sheet have also to be made before being passed on to the tabulators.

A checker may turn over something like 300 scripts a day. The total checked however should not exceed 5000 scripts, lest the job should get done casually. The ratio between the number of checkers and the scrutiny officer may be 10 : 1. It is also important to lay down the qualifications of checkers as well as scrutiny officers.

RE-SCORING OF SCRIPTS

Sometimes re-scoring of scripts might prove that the examiner has been grossly negligent. If this fact is conclusively proved, there is a good case for [illegible]

the prestige and welfare of the examiner than that of the examinee. In terms of priorities it is the wrong order to follow. Even as it is, the traditional examination system is, so to speak, loaded against the student. Not to be able to ensure that the examiner does his job conscientiously is to load it even more heavily against him.

To deal with minor mistakes which can be detected by checkers and [illegible]

the remuneration.

APPOINTMENT OF EXAMINERS

This whole discussion raises the question of how examiners are appoint-ed and what should be their qualifications. Over the years universities have evolved procedures in this regard and it does not seem necessary to refer to them in any detail. The following points may however be noted :

(*a*) In principle whoever is fit to teach is also fit to examine.

(*b*) In appointing examiners therefore, undue importance need not be attached to seniority as a teacher. This approach gives rise to a kind of spoils system. To weaken it, a matter of high priority, it is necessary to have as much rotation amongst examiners as is practicable.

(*c*) An important qualification to be looked for amongst examiners should be to what extent they are careful and conscientious. This is a matter to which universities may pay more attention.

(*d*) Ensuring secrecy in respect of those appointed is imperative. The system evolved for appointing examiners in most universities often conflicts with this requirement. When the appointment of exa-miners is the exclusive preserve of a small coterie of people, as has been happening in quite a few universities, there is usually a de-mand to make the whole thing open and democratic. This usually means that secrecy is sacrificed in the interest of justice. What is required is a system whereby both justice and secrecy are ensured.

(*e*) In quite a few universities recommendations are made by the boards of studies but the final selection is made by another agency. Some-times it is the vice-chancellor himself and sometimes it is a com-mittee. Whichever method is adopted the important thing, let it be repeated, is to ensure that the same set of people are not ap-pointed year after year and that the identity of examiners does not get known except to those concerned with the examination work.

(*f*) The proportion of internal and external examiners has also been a matter of debate in quite a few places. Most universities like to observe the 50 : 50 proportion. On the whole this is a salu-tary practice. At the same time instances are not unknown where a greater proportion of internal examiners have been introduced without hurting the standards or compromising the integrity of work. Perhaps a distinction ought to be made in terms of princi-ples between the under-graduate and the post-graduate level.

OBJECTIVE TESTS

What has been said above applies to that kind of testing where students are required to compose their responses. There is also another kind of testing where students are required to select one of the responses already given in the question paper. These tests are popularly known as objective tests. For every question a few answers are given in the question-paper and students are required to select the best answer. It is not necessary to go into further details at this stage. These can be found elsewhere in this book. It is enough to say here that this mode of testing has been found useful in those countries where, (*a*) machine scoring is preferred, (*b*) emphasis is placed

on testing a student in terms of his entire course and not selected bits, and, (c) working at top speed (that is doing a given span of work within the allotted time) is regarded as an important educational objective.

In terms of chronology, objective tests are essentially a twentieth century phenomenon. In recent decades the problems of testing have received

cultist. It is for this reason that the seminar recommended that objective questions should be used in judicious combination with the other types of questions. There are certain types of abilities which can be tested quite effectively by these objective tests To this extent, objective tests must be

Since this system is not known widely in the country, steps have to be taken to familiarise academics with the various difficulties that have to be mastered before objective tests can be used on any significant scale These difficulties are discussed elsewhere in the book and it does not seem necessary to refer to them in detail here.

PRACTICALS

There are certain educational outcomes which cannot be examined by paper-pencil tests, e g. handling of instruments, ability to set up and conduct experiments, etc. For examining such outcomes, practical examinations are indispensable. There are difficulties however which have to be overcome if assessment in respect of practical examinations is to be a reliable guide to the abilities of a student For instance, the element of subjectivity on the part of the examiner can be quite pronounced in the case of a practical examination. Then there are external factors, such as, his physical, mental and emotional condition, the condition of the apparatus given to him, the difficulties of the individual task assigned, the atmosphere of goodwill and cooperation the examiner is able to create and other facilities like light, ventilation, temperature of the room, etc , which influence a student's performance. Not only that, there is no record left for the re-scoring of a student's performance Owing to all these reasons, practical examinations may not attain a high degree of reliability. Yet, if we do not have practical examinations at all for fear of low reliability, students may not develop any skill worth the name in the use of instruments and other manipulative skills, and these are crucial in scientific training.

Despite what has been said above, it is possible to improve the reliability of practical examinations if the tasks set to all the students are equally diffi-

any careless mistakes penalties by way of deduction of marks can be imposed.

Though opinion was somewhat divided in the matter, the majority of those present were firmly of the view that results in practicals should not be based on a single examination at the end of the course. Instead there should be more than one examination during the course of study. In this regard the following suggestions were made :

(a) External examiners may conduct practical examinations at least twice a year.

(b) There might be continuous internal assessment of a student's performance throughout the year.

(c) Equal weight be assigned to the assessment made by the external examiners and the internal examiners.

Which of these procedures may be adopted and in which combination was left to the universities to decide.

In almost all universities there is a practice according to which students maintain note-books of practicals done by them. The record should be, it may be mentioned in passing, in the form of a project report wherein he should mention the difficulties in manipulation, details of observations made, tabulation and correlation of data, standard error of measurements, etc. While awarding scores on practicals, examiners take into account the record of work done by a student in the course of the year. As the range of experiments prescribed for the course hardly vary from year to year, some students simply copy down what their predecessors had done in the preceding years. The seminar therefore recommended that whichever of the methods proposed above is adopted it is important to ensure that students do not get any credit for the record of their practical experiments in case the examiner suspects that what he sees in front of himself is only a repetition of work done by earlier batches of students.

VIVA-VOCE

The desirability and otherwise of *viva-voce* tests has already been discussed in the preceding chapter. Should a university ultimately decide to use this mode of assessment, the following precautions must invariably be observed :

(a) It was reported to the seminar that in certain universities *viva-voce* examinations are held before the written examination. This is not correct. *Viva-voce* examinations should follow the written examination and not precede it. Indeed if more than one examination is held during the course then *viva-voce* examination should be held after each examination.

(b) Properly speaking, such an examination should be held in respect of each paper. If, as a result of certain practical difficulties, this cannot be done, the *viva-voce* examination should be based on all the written papers taken as a unit.

(c) The *viva-voce* examination should be conducted by a board of three examiners, at least one of whom should be internal and one external.

(d) Each student should be given at least 15 minutes.

(e) Marks secured in *viva-voce* examination have to be combined with

the marks secured in the written examination. But two precautions must be taken. One, that every student should secure a minimum percentage of marks in each category. Two, that in the marks-sheet issued marks in respect of both are shown separately.

(f) In order to be meaningful, weightage for the *viva-voce* examination should not be less than 10% of the total marks The upper ceiling in this regard need not be unduly high either.

(g) *Viva-voce* should form an essential part of practical examinations at all levels.

Opinion with regard to the advisability of using this mode of assess- ent was sharply divided. Apprehensions regarding its misuse were strongly rticulated. The seminar therefore recommended its use only at the post- raduate level and that too after due safeguards against misuse had been aken.

SCALING

The procedure of converting different scales to a common scale is termed "scaling".

Two members cannot be validly added unless both represent the same scale of measurement. For instance, no direct addition of metres and yards can be validly made For this purpose we have to convert the two scales—metres and yards—to a common scale. We could do it by converting metres into yards or yards into metres or both to a common scale This is a fundamental principle of arithmetic. Everyone uses it in day to day life. Yet, strangely enough, in dealing with examination marks this simple principle is often completely ignored

It is an established fact that no two examiners have the same scale of marking. Hence direct comparison between the marks awarded by two examiners cannot be validly made. The need for scaling arises when direct comparison is to be made between marks given by different examiners in respect of different papers and different institutions Detailed discussion on the details of methods of scaling is given in Part II of this book but a few points may be referred to here as well.

For instance, a few examining bodies directly add objective-test scores to essay-test scores This practice is objectionable for two reasons One, it gives objective test performance more weightage than is justifiable To illustrate, suppose a hundred mark test of three hours is divided into two equal parts, one part having essay-type questions and the other having objec tive-type questions The essay-type questions will carry 50 marks sinc 100 has to be divided by two. The objective questions, on the other hanc would in this manner carry 150 marks as the objective questions to be dor in 1½ hours may include 150 items If objective test scores are directly add to the essay-test scores, evidently the objective test would carry three tim as much weight as the essay test of the same duration of time Two, unsca objective-test scores are likely to over-estimate or under estimate studer achievements depending on item difficulties There are other considerati also that have to be taken into account in interpreting objective-test sco All these considerations cannot be discussed here due to paucity of sp It seems right to insist therefore that being a technical matter obje testing should be introduced in examinations only after proper trainu

persons involved in the construction, administration, scoring and interpretation of objective tests.*

The seminar noted with concern that while the need for scaling examination marks is obviously so great, hardly a few universities use this system. The only university, according to information available, which uses this system in respect of all its major examinations is Gauhati. Elsewhere it is rarely if at all used and that too in respect of certain examinations. In the traditional essay tests there are differences in marking standards which vary from examiner to examiner, from paper to paper and from institution to institution. In the case of those institutions which give some weightage to internal assessment the variation is likely to be even steeper. In consequence, a student's results may be based more on the marking standard he happens to get rather than his intrinsic merit. All this needs to be straightened out and the only way of doing it is to adopt scaling as one of the essential principles of assessment.

There are several methods of scaling. An appropriate method would take into account both mean and standard deviation. It was left to the universities to decide which particular method suited them.

When marks of different examiners are to be scaled, one of the following conditions should be satisfied :

(1) Each examiner gets an equivalent set of scripts.

(2) There is an accurate estimate of the differences amongst the batches examined by different examiners.

To satisfy the first condition, one method would be to distribute scripts on a random basis. This can be done by allotting roll numbers from a table of random numbers. Another could be the distribution of roll numbers in the manner as is done in Gauhati University (for details please see V. S. Misra's paper on "Scaling of Examination Marks").

In case it is feasible to distribute scripts on a random basis, some method has to be found to satisfy the second condition. One such method could be the provision of a link test (details of its construction and use can be found in the two books by Dorothy C. Adkins and A. E. Traxler referred to above) which would be an objective achievement test. Another could be the provision of the same scripts, about a dozen in number and representing various levels of abilities, to be independently examined by all the examiners. Which method is followed was left to the universities.

TRAINING OF RANDOMISERS AND SCALERS

As should be evident, randomisation of scripts and scaling of marks re technical matters. Hence those engaged in these tasks would require to trained. Perhaps the UGC could undertake this job and other related jobs which require training in the various technical matters connected with

*For further discussion on scaling in respect of objective test scores, the following may be consulted: Adkins, Dorothy C. *Construction and Analysis of Achievement Tests,* Washington D.C., United States Civil Service Commission, 1947, pp. 104-202.

Traxler A.E. "Administration and Scoring of the Objective Tests" in E.F. Lindquist (Ed.), *Educational Measurements*, Washington D.C., American Council on Education, 1951 pp. 329-416.

ation reform. Since it may not be possible for a large number of
to receive training it may also be useful to prepare a manual des-
g these technical matters in non-technical language. This manual
d explain in detail various procedures, educational and statistical,
would improve the reliability and validity of examinations. This
ual should be widely circulated and made available to universities, col-
s and all others interested in this work.

DERATION OF RESULTS

After results are tabulated it is found that some students do not pass
by a narrow margin. In view of the unreliability of examinations such stu-
dents are allowed to pass by awarding them grace marks. The very des-
cription 'grace marks' sounds as if marks are being given to students out of a
feeling of charity. This is resented by some people. Another reaction is to
regard the whole thing as an under-the-counter device to help those who do
not deserve to be helped. This feeling of revulsion is sometimes expressed
by the use of the term 'disgrace marks'.

The seminar therefore recommended that the use of the term grace
marks should be given up. Instead these marks should be described as
moderation marks. Technically too, that would be a correct description
To enable those students who are failing by a narrow margin to pass is not
an act of charity. It is an acknowledgement of the unreliability of exami-
nations.

It is easy to expound this principle but difficult to implement it in con-
crete situations. That is because what constitutes a border-line case is some-
times a matter of definition and sometimes a matter of judgement. If it
were all to be laid down in advance (one proposal which received strong sup-
port was that the maximum moderation permissible should be one per cent
of the total marks in that particular course), the whole thing may become
mechanical. If it were left to the discretion of a committee, however care-
fully constituted, arbitrariness could not be ruled out. A point of viev
expressed forcefully was that examination marks are sacrosanct and wha
ever decisions are taken should be based on certain sound and well-defin
principles rather than on the subjective judgement of a committee Clear
there is hardly any meeting ground between these two points of view. I
tances are not unknown where the application of a mechanical formula
failed to meet the needs of the situation. At the same time in certain c
decisions taken have been of such a scandalous character that enquiries
had to be instituted. There was not enough time at the disposal of the
nar to evolve a set of foolproof recommendations The matters w
gard to which agreement could be reached were as follows .

(a) Results of every examination must be moderated as an ad
check against the vagaries of marking.

(b) As a matter of policy, there should be clearly formulated p
of moderation (relying largely on the basis of standard
measurement or other appropriate statistical methods)
applied consistently every year and in respect of each exa

(c) Where these general principles become inapplicable an
ration committee is convinced that some thing more

A + might mean anything from 60 to 70 or 65 to 75 or 70 to 75 The variation given here need not cause any confusion because the categorisation differs from system to system.

Another important aspect of it also needs to be referred to. It is widely known that a student in Mathematics or Physics can easily score 80 or 90 marks whereas the same does not apply to a student in History or Sociology. Indeed a first-rate student in the latter two subjects may score no more than 60 or 70 marks. There is no disagreement with regard to their respective qualities of mind but their numerial scores are different. This is bound to be so as long as the numerical system is followed. To imagine however that the numerical system as prevalent today will be given up is a vain hope. If at all it is given up, it will be at a much later stage when some of the more urgent reforms have been already carried out So no more need be said about it at this stage.

There is one thing however that can be done and is in the process of being done. This refers to the absolute *versus* relative system of marking In the absolute system of marking, a student's achievement is measured on a continuum. This is usually expressed in terms of percentage. The idea is that one who has learnt everything that he is required to learn as
t nothing
depend-
absolute
is learnt
the prescribed course. This information is indispensable for selecting students where a minimum level of achievement is an absolute must The limitations of this system must also be acknowledged It does not, for instance, tell anything about the relative performance of the students Empirical evidence suggests that in absolute terms 5 to 7 levels of ability can be differentiated by human judgement. Thus the grading of students on an absolute system of 100 units is not very practicable.

To overcome these and other limitations suggestions have been made to use the relative system of marking. This system differentiates students on the basis of their relative performance. Differentiation is made in terms of percentile ranks or categories In this connection attention of the seminar was drawn to the following observation of the Education Commission:

"We recommend that the grading or classification of examination results is almost invariably done on an absolute rather than on a relative basis. In our present system of examination, 80% marks in Mathe-

...tudent belongs, say to the top
It is strongly recommended
...nations and classifying the re-
...y giving, in the same
...on a five point-scale.
...top 20% of those who

To sum up, the seminar felt that there is not much meaning in small differences of the numerical scores. What is more helpful and relevant is to

indicate a student's rank in the group. It is necessary to report the percentile ranks of the students in each paper in addition to their scores which, as recommended above, have to be duly scaled. To improve the effectiveness of the results as an indicator of a student's merit, the percentile grades of the candidates in different papers ought to be taken into account while deciding his final grade.

It was noted in this connection that the recommendation of the Education Commission, as given above, has been endorsed both by the Inter-University Board and the University Grants Commission and that steps are being taken to inform the Union Public Service Commission and other State Service Commissions, as also the Reserve Bank of India to accept this new basis of awarding grades once the universities are able to adopt the new system.

RE-APPEARING IN THE EXAMINATION

Failed students are allowed to re-appear in the examination within a certain number of years. The rules in this regard vary from university to university. Of late those students who had passed out and wished to improve their division are also being allowed to re-appear. In the opinion of the seminar, there should be some limit to the number of chances that can be given to a student for improving his class. Not more than three chances in five years is a reasonable limit at the post-graduate level. The necessity for such a provision at the under-graduate level does not seem to be urgent. Should there be a demand for it, what is applicable at the post-graduate level can also be made applicable at the under-graduate level.

Five

Conduct of Examination

AVING EXAMINED THE principles and procedures of assessment it is time to
ırn to how examinations are arranged and conducted by universities Where
ıe university is unitary and residential the problems are, comparatively
peaking, very few. The numbers involved are not large and the student-
acher ratio is generally good so that there are not many problems. In the
ıse of universities which have a large number of affiliated colleges and centres
f examination have to be located over a wide geographical area, the prob-
ms are immense and demand considerable planning and coordination In
articular, care has to be taken to see that there are no breakdowns in res-
ect of coordination and the required facilities and materials are made
vailable to candidates under conditions that are deemed to be congenial
) enable them to perform at their best

Recommendations made below are based largely on the experience
ccumulated by the participants over the years. These are not exhaustive
y any means but some of the more important points have been covered

PPLICATION FORMS AND THEIR SCRUTINY

(*i*) *Eligibility* : In certain universities the procedure of asking the col-
ges to scrutinise the eligibility of students has been experimented upon.
ince experience has shown that a further scrutiny has to be carried out
t the university level in any case, there does not seem to be adequate justi-
cation for delegating the job to colleges.

(*ii*) *Late receipt of applications* : Every university prescribes a last
ate for receipt of applications for each examination. Late applications
re usually accepted on payment of a suitable late fee on the recommen-
ation of the principal of the college/head of the department concerned
his last proviso is important because unless the schedule laid down in this

respect is observed the university office cannot cope with all the applications received after the due date.

(*iii*) *Mechanical aids* : The use of mechanical aids for the compilation of the lists of candidates etc. for the various examinations is exceedingly helpful. Universities which are not using these aids so far may start doing so as soon as possible. The UGC may be requested to give suitable financial assistance to universities for acquiring these mechanical aids.

EXAMINATION SCHEDULES

(*i*) It is important to notify the dates of commencement of various examinations etc. well in advance so that both teachers and students can plan their schedule of work accordingly. Ordinarily speaking, a student should not be required to answer more than one question-paper on a single day.

(*ii*) Suitable accommodation in respect of examination centres is not always easily available. A certain amount of advance planning has therefore to be undertaken. To the extent possible the use of small rooms should be avoided because it tends to inflate the costs.

(*iii*) As a matter of general principle, results should be declared within eight weeks of the completion of a particular examination. Sometimes difficulties in this regard are encountered but these have to be overcome. Each university should take such measures as are necessary to achieve this objective.

PRINTING OF QUESTION-PAPERS

Some universities (especially those with larger enrolments) have adopted the practice of advance printing of question-papers at a central place whereas some others (especially if they happen to be small in size and residential in character) undertake local printing one day before the examination. While there is something to be said for each of these two methods, on balance it was recommended that universities should adopt the system of advance printing of question papers, subject of course to the individual requirements of the university concerned.

OTHER MATTERS

(*i*) *Custody of examinational material* : The obvious person to be entrusted with and made responsible for the custody of all examination material, particularly that of a confidential nature, is the controller of exami-[illegible]ons or the officer incharge of the examination branch. Since the volume [illegible]ork in most universities is considerable, it stands to reason that he [illegible]ld be assisted in the discharge of this responsibility by another officer [illegible]t below the rank of an assistant registrar.

It would be necessary to maintain the same standards of responsibility when this material of confidential nature is transferred to examination centres. These centres are usually under the charge of senior professors functioning as centre superintendents. They should be required to take special care of the custody of blank answer-books and supplementary sheets and maintain a proper account thereof. It would also be helpful to have surprise checks to ensure compliance with rules in this regard.

(ii) *Seating plan* : For purposes of record and reference room-wise seating plans of centres should be sent to the university office by the centre superintendent. The ideal distance between two candidates should not be less than four feet.

Occasionally it is useful to change the seating plans and this fact must be brought to the notice of the university office.

(iii) *Despatch of answer-books* : Unless there are over-riding reasons against it, answer-books should be despatched to the examiners on the same day. The despatch of answer-books may be organised centrally by the non-affiliating universities. In the case of affiliating universities a procedure should be evolved whereby answer-books are sent by the centre superintendent in parcels addressed (self-system) to the examiners by rail and the RRs are sent to the university office for re-transmission to the examiners after due endorsement.

INVIGILATION

Invigilation duties are best performed by members of the teaching staff and the centre superintendent should not turn to any other source unless it is unavoidable or there is an emergency. Persons whose close relations (as defined in the convention regarding appointment of examiners) are appearing at an examination should not be considered eligible for the purpose. An important safeguard however is that 27% of the invigilators required at each examination centre on any day should be from outside that centre. As far as possible one invigilator for every 20 students is a norm that ought to be followed. Even if the room is small and the number of candidates is not all that large, two invigilators, nevertheless, should be appointed.

To inspect the conduct of examinations when these are in progress is an important part of the university responsibility. This would be referred to in detail however a little later.

TABULATORS AND COLLATORS

Till such time as mechanical aids are not used extensively, the appointment of tabulators and collators is unavoidable. Secrecy in respect of their appointment is also equally important. As far as possible, teachers alone should be assigned these responsibilities. In case anyone is found guilty of leakage of information severe action should be taken against him. In regard to their appointment the best procedure seems to be that they are appointed by the vice-chancellor on the recommendation of the controller of examinations.

CONFIDENTIAL PROCEDURES

In order to maintain secrecy of the names of the examiners, the procedure of their appointment has to be reviewed. In quite a few places these names are submitted to the executive council or the academic council with consequent loss of secrecy. In the opinion of the seminar this system [illegible] changed. While names may be invited from the committees of [illegible] of studies constituted under the provisions of [illegible] decision ought to be taken by [illegible]

agency such as a special committee composed of nominees of the academic council and the executive council or some other variation of this suggestion. The decision could also vest in the vice-chancellor, provided he is not over-burdened with other duties. Whatever mechanism is evolved, the important thing to ensure is that the identity of the examiner does not become public.

MASS COPYING

In a manner of speaking, all that has been said above applies to situations where things are orderly and subject, at worst, to normal stresses and strains. In recent years however a new phenomenon has raised its head. To describe it as mass copying would be to somewhat over-state the case; to describe it as a widespread use of unfair means would be to somewhat under-state the case. The truth lies somewhere between these two extremes.

The truth of the matter is that copying on a mass scale occurs only in certain parts of the country; it does not occur everywhere. Secondly, it is a comparatively recent phenomenon and was not to be encountered till the last 10—15 years. Thirdly, even to describe it as a phenomenon might be taken to mean that it has come to stay. That has not happened. As a matter of fact, wherever sustained and stringent efforts have been made to curb this menace it has been curbed. It is useful to bear these facts in mind because the problem must be seen in its correct perspective. Then alone can active steps be taken to combat this menace.

A menace it is, without question. Wherever it has been encountered the authority of the university has been undermined. This has been accomplished by gangs of students indulging in collective indiscipline and flouting of rules. This has also been accompanied by either actual violence or threat of violence. Consequently these rowdy students manage to demoralise those incharge of examination work. In certain cases some of the invigilators and others turn a blind eye to what is happening. Cases have also been known where those incharge of arrangements have connived with students.

Without, in any way, under-rating the difficulties of the situation the seminar felt that the situation should be seen as difficult but not discouraging. Experience of several universities was quoted in this connection. Wherever a university had shown the will to assert its authority the situation had been brought under control. But where that had not happened, the evil spread unchecked.

The vice-chancellor of one of the universities who was present at the ...ninar reported in detail about how his university had tried, with consi...terable success, to deal with this problem. Amongst the steps taken by his university, the following may be mentioned:

(*a*) The first thing the university had done was to build up the morale of all those concerned with examination work. These included the centre superintendents, invigilators and other supporting staff. To the extent that this had been done, rowdy elements had felt demoralised.

(*b*) The university had constituted several flying squads. These consisted of a small number of senior teachers whose reputation

for integrity was of the highest order. They were authorised to make surprise visits to any centre for the purpose of detecting the use of unfair means In order to be able to do this they were provided with transport facilities. More than that, their movements were always kept secret They had also been vested by the university with legal powers to search any examinee whom they suspected in any manner A number of such raids hadbeen organised with results that had been entirely salutary. An important pre-condition of the success of these raids was the availability of the police force in adequate numbers as and when required

(c) In the first year when this campaign was undertaken the number of cases detected was very high In the following year, because of the firm action taken by the university, the number of such cases had come down considerably and the situation could be described as almost under control. Once it was known that the university was not going to show any leniency, the morale of all those indulging in these malpractices sagged.

(d) Though no violence had actually been used upon any invigilator or centre superintendent in the course of the preceding two years, the threat of violence was always there. In order to enable teachers, invigilators and other staff to function without being intimidated, the university had provided for each one of them a form of comprehensive insurance. According to its terms, the university undertook to meet 100% of the expenditure for any physical injury. In case of any fatal incident the university undertook to provide to the survivors of the deceased with pension equal to half the salary that he was or he would have been drawing upto the period when he would have normally retired This figure also included the increments that the deceased would have drawn had he survived. The minimum and maximum of this form of pension were laid down at Rs 250/- and Rs 600/- Several other ancillary benefits were also made available. Originally, the Life Insurance Corporation was approached to provide this kind of cover. The rates quoted however were on the high side. So the university decided to create a fund of its own out of the remunerations paid to the examiners An amount equal to 3% was deducted from the remuneration of each examiner/invigilator/centre superintendent and this was put into the fund. The university contributed an equal amount and all charges were met out of this fund. Fortunately the demands on it so far have been almost nominal.

(e) The university has issued an ordinance whereby a teacher, if called upon, is obliged to perform invigilation duties. It has not been particularly necessary to invoke the provisions of this ordinance. The fact that such a provision exists on the statute book of the university has proved extra ordinarily helpful

(f) Wherever necessary, the support of the executive authorities had been obtained. In certain situations even Section 144 of the Indian Penal Code had been invoked. This had become necessary to discourage parents and guardians gathering in large num-

bers near the examination centres in order to help and connive in the traffic of help-books, note-books, smuggled question papers and answer-books, etc. As soon as students and others assisting them found that the university authorities were determined to conduct examination on their terms, whether willingly or unwillingly, almost everyone cooperated.

It was clear to the seminar that the key to the solution of the problem was to overcome this state of demoralisation to which rowdy students sometimes reduced the invigilation staff. The steps detailed above had helped to overcome this state of demoralisation and were to be welcomed from that point of view. That this had been done by mobilising the support of a certain number of conscientious teachers (who are not all that few in number as those cynically disposed or with a faint heart were inclined to believe) indicated that, tackled the right way, the problem could be solved.

The right way lay in first arresting and then reversing the process of the abdication of the authority of the university that had taken place, to some extent and in certain places, during recent years. As soon as the students and their helpers realised that the university was not prepared to tolerate violation of rules they accepted the new situation calmly, if also stoically. In the circumstances that exist in the country this is the best that could be hoped for. Universities do not exist in a vacuum. They are very much a part of the society in which they are located. Their postulates as well as their modes of structure and organisation are approximately the same as those of other sectors of social activity. The trends of development in other walks of life have inevitably had their impact on the working of the universities. The conduct of examinations was a particularly sensitive point of contact between the university and the students and that is why in certain places the situation had become increasingly difficult. By being firm in its assertion of authority what the university can ensure is that mass copying disappears as a phenomenon, though copying by individuals would regrettably continue. In addition to the steps reported above, the seminar also recommended as follows :

(*a*) The problem should be faced and not evaded. Unless it is faced boldly and consistently and in time it will get more and more complicated and difficult of solution as time passes. Unless the existing unhealthy trends are checked it can even lead to a breakdown of the examination system. Timely and effective intervention is therefore imperative.

(*b*) While some universities had appropriate rules and procedures in the form of statutes, ordinances, regulations for taking prompt and decisive action to deal with cases of mass copying, others had yet to evolve such procedures. This is a matter that needs immediate attention whether a university is confronted with the problem or not. As far as the statute book of the university is concerned, it must be comprehensive in all respects, even with regard to situations that have yet to arise.

(*c*) While drawing up such regulations it must be ensured that the vice-chancellor is vested with sufficient powers to deal with any emergencies that might arise. Quite often there is no time to summon meetings and consult other people. That is why it is necessary that the vice-chancellor who is in any case the executive

head of the university should be explicitly vested with powers to deal with unforeseen situations. Wherever a university has [illegible] be subsequently [illegible]ted to the syndi-

(*d*) In order to deal with the problem effectively it is important that, wherever required, drastic steps like cancellation of a particular examination/s, abolition of the centre, etc. might be taken. If, for instance, the centre superintendent reports that at a particular centre or in a particular room there had been mass copying it [illegible] be crushed promptly and decisively.

(*e*) The role and authority of the centre superintendent were crucial to the conduct of examinations. Utmost care should therefore be taken to select such people who possess the requisite sense of commitment and toughness of character. When things are normal and orderly such a requirement may not be all that important. But if things have deteriorated at a certain place and the situation has to be brought back to normal the personal attributes of the person/s chosen become decisive.

(*f*) It might be advantageous to arrange periodical meetings of centre superintendents at the university headquarters. To hold such a meeting after the examinations are over and to hold another meeting before the next round of examinations [illegible] seems to be appropriate in terms of the calendar of the [illegible] These meetings do not have to necessarily [illegible] laid down agenda. Rather they must enable the [illegible] to exchange information and experience [illegible] the conduct of examination[illegible] fessors and principals who had not [illegible] but enjoyed a certain measure of [illegible] nity would be helpful. [illegible] the existing situation and [illegible] required as also start a series of [illegible]

Getting a [illegible] teachers in the [illegible] the public so as to [illegible] practices is a step [illegible] above, the problem [illegible] doing so is to [illegible]

(g) Universities [illegible] of any [illegible] dents wh[illegible] deration [illegible] to st[illegible] wh[illegible]

(*h*) Above all, the phenomenon of mass copying is a comment on the kind of instruction that is offered to students in some of our educational institutions. What is taught appears to students to be neither relevant nor meaningful nor interesting. While it was not for the seminar to go into this question in any depth, to overlook the academic dimension of the problem would have been another form of evasion

USE OF UNFAIR MEANS

The use of unfair means in examinations is as old as examinations themselves. One therefore need not feel unduly defensive about it as one is obliged to feel in respect of mass copying. The primary difference between these two phenomena is that in the case of mass copying students openly defy the canons of academic propriety whereas while using unfair means students are afraid of being found out and disgraced. Even in respect of these cases there has been a steep increase in recent years but this is not so alarming as the phenomenon of mass copying practised in certain parts of the country.

In regard to the use of unfair means most universities already possess a certain amount of experience. The following recommendations were made on the basis of a certain pooling of experience that a number of participants brought to bear on the problem :

(*a*) Unfair means can be used (i) before the examination (ii) during the examination and (iii) after the examination. Each one of these cases has to be dealt with in its own way.

(*b*) Before the examination the commonest form of unfair means is the leakage of the question papers. This can take place at the level of the paper-setter or the moderator/s or the staff concerned in the university office or anyone working in the printing press or the centre superintendent who is entrusted with the question-papers. Over the years most universities have evolved a kind of system about it. As reported at the seminar, there was considerable diversity in respect of these arrangements. To evolve a uniform system would be unworkable. The seminar did not pursue this question beyond this point that the failure in most of these cases is that of a particular individual. Amongst other attributes, all those connected with the process of preparation of question-papers should be reliable persons in the best sense of the word. Wherever any kind of weakness is detected such a person must be eliminated from the chain.

Yet another safeguard can be the one recommended in respect of the pool of question-papers suggested elsewhere in these proceedings. If a large number of question papers are prepared and the ultimate decision as to which one is used rests only with one individual this problem could be overcome to a great extent.

(*c*) In the course of the examination a whole variety of things can happen. It is not possible to give an answer to each one of them in advance. As a matter of fact it is surprising how those who wish to use unfair means hit upon newer and newer methods of doing so. Their sense of improvisation would be impressive

were it not for the bad motivation. A few of the situations commonly encountered may be mentioned here however :

(*d*) Use of books and notes brought into the examination hall requires nothing better than alertness on the part of the invigilators.

(*e*) Smuggling of question-papers outside the examination hall and smuggling of written answer-books into the hall are also phenomena that can be encountered by greater vigilance on the part of the invigilators

(*f*) Impersonation, though not very frequent, is a danger that has to be guarded against. It is more prevalent in the case of private students than in the case of regular students. In such cases apart from the attendance-sheets where each student is required to sign, special arrangements can be made in respect of private candidates For instance, they may be required to sign on a kind of passbook which carries an attested photograph of theirs and there is additional space for his signatures. These should be taken everyday and duly countersigned by the invigilator. In the case of regular students they may be required to produce their identity cards as and when necessary.

(*g*) When a case of use of unfair means is detected, it is important that reporting is done in the appropriate manner bringing out the detailed facts relating to the occurrence. In fact it was suggested that reporting must be done in terms of a standard proforma. In this connection attention was drawn to the proforma being used by Gorakhpur University It is given (see appendix A) as a kind of model which can be adopted for use as required.

(*h*) Since decisions taken in this regard are subject to judicial review, due precautions must be taken. For instance, the enquiry must indeed be fair and the examinee must be given adequate opportunity to defend himself. Not only that, the enquiring authority must scrupulously observe the principles of natural justice in conducting the enquiry, though it is not necessary to apply all those considerations that govern criminal trials in the courts.

(*i*) Since the requirement of natural justice regarding the procedure of enquiry depends to a great extent on the facts and circumstances of each case the enquiring authority must strictly follow the rules and procedure prescribed by the university code in this behalf.

(*j*) In order to afford an adequate opportunity of defence the charges framed against the student must be clear and the evidences intended to be used against him must be brought to his notice. He should be given an opportunity to explain or rebut the evidence. If he makes a request for personal hearing or permission to inspect any document the request should not be denied in case such a procedure or facility is necessary for putting up a defence

(*k*) Paper-setters, examiners, invigilators, and all others directly

concerned with the conduct of examinations should be treated as public servants within the meaning of the law for all practical purposes. This will not only ensure that they can be prosecuted in a court of law for dereliction of duty but will also give them added protection against use of violence on the part of those who resort to unfair means.

(l) Whether examiners, invigilators and others connected with the conduct of examinations can be treated as public servants or not is a matter that requires legal examination. Without any prejudice to this issue the procedures regarding use of unfair means now in force in universities might also be re-examined from the legal point of view. In a few cases law courts had passed strictures against universities. This must be avoided at all costs.

SPACING AND FREQUENCY OF EXAMINATIONS

The traditional practice in our universities so far has been of one final examination at the end of the course. This has been criticised on several grounds. Amongst the changes effected in recent years, two may be mentioned. In the case of the three-year degree course majority of universities now hold an examination at the end of every year. The second change has been the introduction of the semester system in certain universities. For the greater part it is used in professional faculties and at the post-graduate level. In a few cases however it has been enforced even in respect of under-graduate course. But the number of universities that have switched over to the semester system is not particularly large as yet. Consequently the frequency of examinations is an issue with regard to which the seminar could not take a firm position. This is a matter which needs to be discussed in the larger context and in relation to the system prevailing in thar university. All that the seminar could agree upon was that there should be one examination at the end of an academic year and, wherever possible, there may be two examinations with the necessary introduction of the semester system at the post-graduate level, particularly in professional examinations.

Six

Post Evaluation Jobs

To VISIT A university office when awards are being received and tabulated presents a strange contrast to the atmosphere which prevails when question papers are being framed and other preparations are being made. The chief difference lies in this. When these awards start flowing in there is a lot of work to be got through on time and so a sense of crisis is generated. Almost every job has to be completed by a given date. Any kind of delay means delay in the publication of the result which never enhances the reputation of the university In this crisis-laden atmosphere, so to speak, a good deal depends upon the inter-personal relations already established by the head of the examination branch with his staff. If the relations are harmonious everyone cooperates in the spirit of "the job has got to be done" But if there are strains of any kind, whether hidden or overt, the situation becomes difficult.

In addition to this problem, there is also the other problem of getting awards on time. Quite a number of examiners fail to comply with the deadline laid down. Some of them are so consistent in their violation of rules and norms that persons with a long experience in the examination branch can, in quite a few cases, anticipate the extent of delay that will take place. There are also odd cases of scripts being delayed in transit or lost, award sheets going astray and a host of other irritations with which the university staff more or less learn to live.

To come to the specific jobs which have to be done by the examination branch, these may be listed as below:

(*a*) When the schedule of dates for the commencement of the examination is drawn up, a schedule in respect of all post evaluation jobs should also be drawn up. Amongst the points to be covered should be the receipt of answer-books, the receipt of awards, commencement and completion of tabulation work and lica-

[illegible] While drawing up the schedule [illegible] the number of [illegible] and also in regard to the recommendation [illegible] that the results should be published within [illegible] of the last date of the examination.

(b) In [illegible] relations, it is advisable that the schedule should be drawn up not by the head of the examination [illegible] but in [illegible] with the various concerned [illegible]. This will help in promoting a sense of involvement on the part of everyone concerned.

(c) [illegible] after the receipt of scripts from the examiners, the checkers should be asked to run through every page of the script [illegible] by examiners. Mistakes, if any, must be brought to the notice of the examiner who will satisfy himself that the mistake is genuine. The checker's job is to point out the mistake. He does not have the authority to make any change or correction. This can be done only by the scrutiny officers. Even his authority is [illegible] in so far as he can correct mistakes of totalling, etc. But if any question or part of a question is left unmarked, that has got to go back either to the examiner or to the head examiner.

(d) The role of checkers and scrutineers is exceedingly important. While no figures have been compiled by any university, the incidence of mistakes committed is quite high. It is important to ensure therefore that this job is done carefully as well as efficiently.

(e) Evidently a ceiling has to be placed on the number of scripts that a checker can handle. The seminar thought something like 5,000 should be appropriate. This would keep him busy for 15-20 days at the rate of 300 or so scripts a day. In terms of remuneration, Rs. 35/- for 1,000 answer-books should be the appropriate rate of payment. In the case of scrutiny officers, Rs. 15/- per day was recommended. Certain universities have chief scrutiny officers also; they may be paid Rs. 20/- per day.

(f) After scripts have been processed in the university office it is the turn of the tabulators to get busy. So far, in most universities tabulation is done manually. As recommended elsewhere, the seminar was of the view that it is desirable to have the aids of calculators, adding machines and such other aids. The use of these aids makes for speed as well as accuracy.

(g) Where machines are not being used, and this is true of most universities today, this part of the job takes quite a long time and is regarded as a tedious part of the whole operaton. But there is no escape from it and the job has got to be done on time. In a certain number of universities, staff from other branches of the university office is mobilised for a few days so as to cope with the rush of work. When mechanical aids can be used extensively, the need for additional hands would disappear.

(h) After the raw results have been prepared, the senior staff are expected to undertake a kind of statistical analysis. This is the time to use those methods of scaling to which reference has been made elsewhere in this Report. While scaling would take

care of a great many of the oddities that come to notice, the rest can be taken care of through methods of scaling and moderation referred to elsewhere in the Report. So no more need to be said here. The only thing to emphasise is that since neither of these two methods are being used at most places the existing situation is profoundly unsatisfactory.

(*f*) The job of checking and tabulation, etc. requires attention to detail and a certain amount of organisation. Scaling and moderation however are skilled operations and cannot be undertaken except by those who have been trained in these skills. Organising workshops and institutes for the training of examination staff is a matter of considerable importance therefore and needs to be given high priority.

MARKS SHEETS

In order to be able to get admission to the next class, especially in the case of professional courses, students require mark/grade sheets almost at the same time as the examination results are declared. This requirement of students has posed difficulties for many universities. Those few of them that have access to mechanical aids have been able to solve their problem successfully. The rest have to get it done manually and this takes time. Since it takes time and the need of the student is urgent, the seminar felt that at the outside detailed marks sheets should be supplied to students/colleges not later than 7 days after the publication of the result. To delay it longer would not be desirable.

VERIFICATION OF MARKS

Almost every university entertains applications for verification of marks obtained by the candidates. This is different from re-assessing the scripts. That issue has been discussed elsewhere in the Report and need [illegible] ted to here. As far as verification of marks is concerned [illegible] continued, it being clearly understood that the verification will [illegible] by the officer-in-charge of the examination work or by someone [illegible] possible.

Seven

Organisational Set Up

ADMINISTRATIVE ARRANGEMENTS IN regard to examination work differ from university to university. This is bound to be so. Despite this diversity, the seminar devoted some attention to discussing what may be, loosely speaking, described as the ideal organisational set-up.

When numbers were small the registrar of the university handled everything. An important part of his duty was to organise and conduct examinations. But as numbers began to increase, delegation of responsibility became unavoidable. At a certain stage of development, a senior official was appointed to take charge of these arrangements. Sometimes he was called the deputy registrar (examinations). Sometimes he was called the controller of examinations. Whatever be the designation, in most universities the registrar continued to be either formally or informally incharge of the examination work. In certain other universities however the controller of examinations was given independent charge of this work. That is to say, he did not deal with the vice-chancellor through the registrar but directly.

This is a trend that has been growing for sometime. Whether this trend grows stronger or not would depend upon a number of factors, an important one of them being the growth in numbers. As a result of considerable discussion, the seminar felt that without upsetting arrangements which are functioning satisfactorily in certain universities, it would be advisable to evolve a system under which the controller of examinations is vested with exclusive responsibility for the work relating to examination. That the controller would also be assisted by a deputy controller and/or assistant controller(s) goes without saying. Clearly, the quantum of the supporting staff would depend upon the individual needs of the university concerned.

UNITS OF ORGANISATION

The work of the examination branch may be divided in terms of the following jobs that have to be done :

(*i*) Registration, enrolment, checking of eligibility forms, listing of candidates, etc.

(*ii*) Registration of private/external candidates, including scrutiny of their application forms for admission to the examinations, etc.

(*iii*) Arrangements for conducting examinations, etc.

(*iv*) Confidential section.

(*v*) Computerisation section wherever mechanical aids are available

(*vi*) Follow-up action in respect of unfair means cases

As would be seen, work in the first two units is like work in other unit- [illegible] the pers [illegible] accuracy [illegible]) handles [illegible] n regard to conduct of examinations can upset arrangements at a crucial moment. Experience acquired over the years is a great asset and it seems advisable not to lose this experience (in this section as in others) unless it is unavoidable. Some people in the unit are also required to visit centres located at distant places and ensure suitable arrangements there. In this regard also experience of having done the job earlier is useful.

CONFIDENTIAL SECTION

The pivot of the whole operation however is the confidential section This section deals with a whole variety of things. It deals with the appointment of paper-setters and examiners. It deals with the framing, moderation, custody, printing and despatch of question papers As a matter of fact getting the question papers printed is not only an important job, it also implies a lot of hard work, correspondence, proof-reading and such other matters. Over the years, as has been found by experience, vigilance in respect of the printing & handling of question papers is crucial. In quite a few cases leakages have occurred because of laxity of arrangements at this level. Fictitious roll numbers are also allotted by this particular section. Once the results start flowing in they have to be tabulated and compiled by this very section, though in certain universities they also allow other sections to handle this work. This is for the reason that the fictitious roll numbers are held in safe custody by the confidential section and others, even if they are dealing with the tabulation of results cannot get to know what they are handling. The moderation and preparation of results is again a confidential operation which has to be handled by this very section. Altogether it will be seen that the success or failure of the examination work handled by a university lies essentially in the competence and confidentiality with which this particular section functions.

What are to be the conditions of service and remuneration of those working in this section is a question that will be examined a little later.

With the increasing use of mechanical aids some of the universities have set up a computerisation section as well. Since the number of such universities is not very large, there is not much field experience to provide

the basis for any detailed comments. It is visualised that in the course of time more and more universities would set up these sections.

One of the important jobs that the examination section of any university has to do relates to the follow-up action in respect of those who have been detected using unfair means. This is a highly responsible work and requires considerable attention to procedural matters. If someone with legal background can be found to handle it, that would be most satisfactory.

STAFF STRUCTURE

Two conflicting points of views were expressed in regard to this issue. According to one view, the structure should be vertical. That is, there should be clerks, senior clerks, assistants and superintendents in the ascending order, dealing with a particular set of responsibilities. This is the system followed in the other branches of the university office and to follow it in the examination branch would be only consistent. The other point of view was that the structure should not be vertical but should consist of different, self-contained units. Each unit should be under the charge of a person who may be a superintendent or an assistant controller depending upon the nature and quantum of the work involved. The efficient working of the unit should be entirely the responsibility of the person incharge of the unit. Of course he would be assisted by assistants and clerks as the case might be.

While the seminar did not come to any definite decision, it recognised that in the case of the second alternative the output was greater. What is more, in terms of this system it is possible to fix responsibility in case there is any kind or lapse or leakage. After all it is easier to locate responsibility when the person/s handling a job is/are known that when responsibility is not strictly localised.

CONDITIONS OF SERVICE

Before norms for staff recruitment are discussed, it seems important to refer to the conditions of service of persons working in the examination branch. Looked at from one point of view, they are university employees like anyone else in the office. There is no question therefore of their conditions of service being different. There is another point of view also however. Since the nature of their work demands greater devotion to duty at certain times of the year, their conditions of service should not be equated with the service conditions of other university employees. To elaborate, a mistake made in any other branch of the university office may not have the same consequences (except possibly in the finance branch) as the mistake made in the examination branch. Persons working in this field of operation are therefore required to be more alert and more responsible. Quite often their work is not vetted or checked by anyone else and the chances of a mistake remaining undetected are always there. Secondly, the schedules of examination and all other steps connected with their conduct and organisation are pre-determined. Dead lines for every little thing are fixed and those have to be complied with. It is all a link in the chain. This might mean that some people have to put in longer hours of work during certain months of the year.

In the case of the junior staff, paying overtime is a recognised practice in most places. In the case of senior staff the same practice cannot be,

and should not be, applied. Yet some of them have to put in long hour
of work, week after week and month after month.

This is neither fair nor a solution to the problem (as described above
in the long run. A number of suggestions were made in this regard but n
conclusion could be arrived at for the problem needs more searching exami
nation. If for instance, they are to be regarded like those employees of
bank who handle cash and are therefore given cash allowance, these job
might be coveted by quite some others in the office. The university author
ties however may not regard them as suitable in the same measure and s

people be transferred to other jobs within the office or should they stay o
in the examination branch year after year? If the second course is followed
what avenues of promotion are open to them? There is a whole host o
issues which needs to be considered in much greater detail.

It was brought to the notice of the seminar in this connection that in
certain universities, the registrar, or the controller of examinations as th
case might be, was paid one or two months' additional salary

NORMS OF STAFF RECRUITMENT

Once the conditions of service have been decided by a university, th
next question to be considered is: what should be the norms of staff recruit
ment? Only a few suggestions, more or less in the nature of general princi
ples, can be made here.

The lowest category of recruitment is that of clerks. Every universit
has laid down certain norms of selection. These norms can be applie
to the examination branch as to any other branch. The general calibre o
those available is not always satisfactory. Perhaps the only thing which th
university authorities can do in this regard is to select the more competen
ones for work in the examination branch. Indeed the nature of responsi
bility to be handled in this branch justifies such an approach.

It is in the selection of assistants that utmost care and rigour should b
exercised Assistants are given jobs of considerable responsibility. The
form the backbone of work in the examination branch. Furthermore, onc
a person has been found fit enough to hold the assistant's post and if ther
is nothing on record against him, he is likely to get promoted when his tur
comes. *In other words, the element of selection should come into pla*
much more decisively at the level of the assistant than at any later level
Promotions beyond this point are likely to be more or less automatic. There
fore every care must be taken to ensure that the assistants selected are of th
right orientation and calibre. It follows from what has been said abov
that not more than 50% persons selected for the post of assistants should
come amongst the ranks of clerks and the remaining 50% should be selecte
from the open market, it being understood that they will be university gra
duates. Even out of the 50% promoted from amongst the clerks, not mor
than 3/5 should be promoted on the basis of seniority alone. The remainin
2/5 should be selected because they are competent.

Since it has been suggested above that the cut out point in respect o
automatic promotions should be the job of the assistant, the senior assistant

and the superintendents would get promoted more or less as their turn comes. The seminar however thought that, even at this level, at last 25% of the jobs should go to candidates who pass a selection test. Automatic promotion is likely to prejudice the chances of those who have capability but not seniority.

It does not require much effort to show that generally automatic promotion acts as a kind of dis-incentive. Whatever be the quality of a person's work, he knows that he will get promoted when his turn comes. This attitude cannot be rejected out of hand in a society where jobs are scarce and subjective factors play a considerable part in personnel policies. Despite these powerful reasons, beyond a certain point seniority cannot be given precedence over competence. This applies particularly to jobs above the level of a superintendent. To have an assistant controller or a controller of examinations selected on the basis of seniority alone can prove disastrous. This is not to suggest that competence, when found within the ranks of the existing staff, should not be given its due. This is only to stress the importance of proper selection at the senior levels of administration in a sensitive area like examination work.

BUILDING AND EQUIPMENT

In quite a few universities, particularly those which were established quite sometime ago and where increasing numbers have outstriped provision of physical facilities, it is not unusual to find the examination branch housed in an unsuitable building. Sometimes, it is not housed in one building but spread over several buildings, though this is not to suggest that access from one building to another is always difficult. Suitable office space is an important contributory factor in favour of the efficiency of operations. Every university must therefore make sure that the examination branch is adequately housed. In view of its specialised functioning, the building should be designed and constructed in such a way that the following requirements are met:

(*a*) While those working in the confidential section may have access to other sections of the branch, others should not have access to the confidential section. This is an elementary kind of precaution that has to be taken. The design of the building sometimes does not facilitate the separation of one section from the other. This must be ensured.

(*b*) Moderation of question papers as well as of results is a confidential operation. Sometimes more than one moderation committee is required to meet at the same time. So unless there is an adequate number of meeting rooms for this purpose (situated in the confidential section, it goes without saying) the work may get impeded.

(*c*) Sometimes meetings of examiners have to be held. Then there are checkers and scrutineers who have to be wroking for several days at a stretch. Suitable accommodation has to be found in respect of each of these persons.

(*d*) For the storage of question papers, whether in the manuscript form or after these have been printed, a separate strong room must be provided. This must be more than a mere store room. Adja-

cent to it there should be some additional space which can be used as the work area.

(*e*) Scripts have to be stored in such a manner that if some of them have to be retrieved in connection with rechecking or any other purpose, this can be done without any loss of time. Quite some universities have learnt through experience that to leave scripts lying around leads to considerable wastage of time

(*f*) There has to be adequate space for confidential records as well. [illegible] tive areas of work should be free and unhindered so that persons can come and go without violating norms of secrecy whether of their own work or that of others.

TRANSPORT

In order to be able to transport examination material to examination centres and sometimes persons connected with examination work, it is important to place a suitable transport at the disposal of the controller of examinations. Universities which have done so have found that in this way their work proceeds more efficiently. In an emergency perhaps no branch of the university needs as much mobility as the examination branch.

EXAMINATION RECORDS

This can be classified into two categories: (*a*) those which are required for some time, and (*b*) those which are to be preserved on a permanent basis.

In respect of permanent records, tabulated registers should be preserved permanently. This is a kind of record which may be required at any stage. This requires considerable storage space which all universities are not in a position to find. One solution, an expensive one though, is to microfilm these tabulated registers. The seminar did not go into the economics of this question It needs to be investigated further.

OTHER RECORDS

Scripts which have been valued need not be kept beyond a period of 6 months after the publication of the result. Marks slips may be preserved for a period of one year. It is important however to preserve the application forms of the candidates for a longer period, say 10 years.

AUDITING AND ACCOUNTING

[illegible] regis- [illegible] ision. [illegible] ersity. [illegible] issue [illegible] ords? If so, how is the university to ensure that the identity of the printing press

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AUDITING AND ACCOUNTING

Expenditure in the confidential branch is usually incurred by the registrar or the controller of examinations under the direction and supervision of the vice-chancellor. This is the practice in almost every university. [illegible] issue [illegible] ords? [illegible] press

where the question papers are printed will remain undisclosed? The seminar did not go very closely into this question. But, as a series of interim recommendations, it suggested as follows:

(*a*) There should be no objection, in principle, to external audit of transactions handled by the confidential branch.

(*b*) The actual mode of operation should be a matter of negotiation between the university and the audit authorities.

(*c*) In case the audit is being done by the Government, it should be entrusted to a senior person, say a deputy accoutant general, who should personally handle this work. delegation in this respect cannot be handled lightly.

(*d*) The audit should be conducted in the presence of either the vice-chancellor or the pro-vice-chancellor who have sanctioned all the expenditure incurred by the confidental branch. In case any question is to be answered, that should be done on the spot. Of course it is understood that the registrar or the controller of examinations, as the case might be, would also be present.

(*e*) The auditors should not ask for any information in regard to the source of printing of confidential documents. This is an administrative matter. All that they are concerned with is if the amount has been spent according to rules and regulations. In other words the auditors will concern themselves with the rates of printing as duly approved by the vice-chancellor and the orders placed for the printing of question papers and not other details.

(*f*) In regard to the payments made to the persons engaged in the confidential work, the identity of such persons does not have be disclosed.

(*g*) The registrar/controller of examinations should maintain a subsidiary cash book detailing therein the transactions of the amount received from the university for disbursement.

Eight

Implementation, Innovation and Research

THE SEMINAR LIKED to believe that its deliberations were, in an important
seminars and con-
ncretise this belief.
make such recom-
ignosis of the pro-
blem and the capacity of the system to adjust to new solutions. Two, to include amongst these recommendations the establishment of a Central Unit concerned with problems of implementation, innovation and research.
lations
vague
the re-
designing of question-papers is not an easy one to implement But it cannot be said that it cannot be implemented It can be implemented provided, and this is an important proviso, both students and teachers interact and collaborate in the implementation of this proposal actively as well as creatively.

The chief merits of this proposal are two. One, to repeat, it involves the students as well as the teachers in the process of re-designing question-papers. Two, while everything else remains the same in the complex system called the public examination, the range and quality of the questions
great effort to show that
it will have a profound
our colleges and universities.

As the Education Commission noted, the public examination system will be with us for a long time. This opinion is very widely shared and the seminar too recognised that even when other innovations are made it would not be possible to replace this system by a new one. For one thing, the

effort involved would be beyond the resources of the academic community. For another, the society at large was not likely to accept any new system or structure so easily. That being so, a way had to be found of working within the existing system and reforming it, so to speak, from within.

The proposal to re-design question-papers is the outcome precisely of this approach. The proposal recognises the fact that examinations will continue to be conducted by the university, question papers will be got set by it, arrangements regarding the conduct of examination would also be handled by it and that examiners as well as paper-setters too would be appointed by it. All these different stages of the examination process would be controlled by an impersonal agency outside the teacher. Whatever may be said against this system, and a good deal has been and will continue to be said, the system has endured and will not be changed so easily. If without changing the system it was desired to make a significant innovation, how could it be done? This was the issue to which the seminar addressed itself. In response, it evolved the proposal of establishing a pool of questions in every university.

To introduce an innovation of such a far-reaching character without fully involving those concerned with it, and this refers to students as well as to teachers, would be utterly unthinkable. Of the various proposals made by the seminar this, in a sense, is the most important as well as the most difficult to implement. The difficulties of implementation however did not discourage the seminar from making it. Resistance to it can come from several quarters. Maybe students do not welcome the proposal. Maybe some teachers regard it as completely contrary to their existing mode of functioning. These are real difficulties and no useful purpose will be served by under-rating them. To ever-rate them however is to decide in advance that no change is possible. The seminar did not subscribe to this position and that is why it made the proposal with a sense of humility as well as earnestness.

CENTRAL UNIT

This is being said not by way of a defence of what has been stated above. The recommendations made by the seminar deserve to stand or fall on their own merit. If they are practicable, and the seminar did its best to see that they were not vague and idealistic, this can be tested by experience. If some of them need to be amended in any manner and made more down-to-earth and realistic, that should be perfectly in order. As a matter of fact, the seminar also made a complementary recommendation to ensure at the matter is not simply forgotten at the conclusion of the seminar. herefore proposed the establishment of a Central Unit to plan & think ew proposals as well as implement the proposals made by this seminar d any subsequent proposals that might be evolved by the said Unit. peaking concretely, the seminar recommended the following to be the chief functions of this Unit:—

(*a*) to analyse question-papers, their composition, character and language;

(*b*) to suggest ways of improving paper-setting and assessment;

(*c*) to organise training programmes in testing practices and instructional objectives for teachers, paper-setters and examiners;

(*d*) to analyse examination results and prepare reports;

(*e*) to undertake studies and experimentation on social, pedagogical and psychological aspects of examinations;

(*f*) to offer suitable programmes to secure cooperation of teachers, students and guardians in the improvement of the examination system;

(*g*) to provide feedback of the relevant information to the appropriate bodies through boards of studies, etc.;

(*h*) to suggest improvements in syllabus, methods of teaching, paper-setting and assessment in different subjects of the curriculum based on the findings of the Unit;

(*i*) to arrange and provide for the preservation and processing of data relating to examinations;

(*j*) to coordinate its findir ... service commissions, secondai ... Indian Statistical Institute, ... Science Talent Search Organization and such other bodies in India and abroad; and

(*k*) to undertake the publication of a news letter or a journal on a regular basis and other studies on a periodic basis

It does not seem necessary to offer any elaborate reasons for the establishment of such a Unit. The functions as enumerated above (and this is by no means a definitive list) are not being performed by any organisation/agency/unit today. Over the last two decades a number of attempts have been made at the university level as well as at the national level to initiate certain reforms. To what extent these initiatives have led to fruitful results is a matter of common knowledge and need not be commented upon here. The fact of the matter is that things have remained substantially what they were, say, as compared to even half a century ago. The proliferation of numbers and institutions has made the problem so much more com-

has not been established so far.

UNIVERSITY UNITS

The necessity of a Unit at the central level is so obvious that no more need be said about it. But equally obvious and important is the establishment of such units at the universities which conduct examinations and declare results. A central unit however active and efficient will not be able to achieve much on its own. It will have to operate through university units and in close cooperation and coordination with them Looked at from this point of view, university units are the key to whatever academic engineering the community of teachers and students wishes to undertake.

The establishment and organisation of a Central Unit can be handled only centrally. In respect of university units it is open to a university to take initiative and embark upon a programme of reforms and changes The seminar therefore devoted some time to discussing how this may be done.

Amongst the specific recommendations that it made, the following may be mentioned :

(*a*) The unit should work as an independent entity which should be directly responsible to the vice-chancellor. The head of the unit should preferably be a person with the standing and/or rank of a professor. This alone would give him the necessary leverage *vis-a-vis* the rest of the academic community. In addition, there will be adequate supporting staff and they would be expected to possess the requisite technical competence.

(*b*) The unit should have easy access to the office of the controller of examinations as well as that of the registrar. It should work through such committee/s as may be considered necessay. It should also invite specialists in the field/subjects to secure wider participation in its work of analysis, research and implementation.

(*c*) In order to secure maximum involvement of those concerned a number of people from colleges, in the case of affiliating universities, should be associated with the work of the unit.

COLLEGE UNITS

As a matter of fact it would be advisable to have college units as well. The responsibility of these units would not be the same as that of university units. That is because examinations are arranged and conducted by the universities. To that extent the bulk of the data for analysis and all other problems connected with the reform of examinations can be found only at the university level. But the university units would not be able to initiate and conduct any changes or experiments without the cooperation of teachers and students. This makes it necessary as well as useful that colleges too should have units dealing with examination reform. The principal obviously should be closely associated with it, in addition to several representatives from various departments. The chairman of the unit shonld be a person conversant with the techniques of evaluation and examination. If at any stage internal assessment is to be organised by a college this unit could also play an important role in its organisation and efficient conduct.

CONCLUSION

Put simply, the seminar recommended a structure of organisations dealing with examinations at various levels of operations. Establishment of a central unit is imperative partly to get the movement of examination reform going and partly to coordinate the work being done or proposed to be done at various universities. The most vital part of the job will however be done at the university level. The power of certification, and that is what examinations essentially are, is vested by law in the universities. According to the Indian Constitution, no other institution except a university can award a degree. Its mode and mechanism for awarding those degrees however has neither been as valid nor as relible as it ought to have been. It is for the universities now to examine their powers in respect of examinations and to ensure that these powers are exercised validly, reliably and justly.

The role of the central unit however is likely to prove of crucial significance *in the years to come, assuming that it gets established. Historically* speaking, since 1947 initiatives have come largely from the Centre. Funds too have come largely from that source. Professional expertise also is more easily available to the Centre than to the States or the universities located in them. Without the Centre providing the leadership as well as playing a dynamic role in this task, the task may not get done at all. It is as simple as that.

Statement adopted by the Seminar

IN SPITE OF the widespread recognition that the system of examinations in the country requires considerable overhauling not much has been done during the last few decades. The existence of the problem was recognised by the Radhakrishnan Commission and has been endorsed by the subsequent Commissions. Now, because of the pressure of numbers, a stage has been reached where the system is beginning to break down.

At the same time, the seminar is convinced of the fact that lack of progress in this regard has not been entirely owing to lack of resources. The resources required to carry out the desired changes and innovations are within the means of most universities. What has been lacking all these years has been initiative and the desire to change. The seminar therefore appeals to the university community to overcome this crippling inertia and pay immediate attention to problems of assessment and evaluation which are so crucial to the academic process.

The seminar recognised that as things have evolved the system of public examinations has come to stay. Most recent attempts at changing the system have been concerned with introducing internal assessment progressively. In principle, the seminar is in favour of internal assessment. Its large scale introduction however would be possible only after adequate preparations are made and necessary administrative safeguards are provided. The seminar therefore affirms that most of the innovations that can be introduced have to be either within the framework of the public examinations system or through a judicious combination of this system with the internal assessment system.

In the opinion of the seminar the imperative need is to improve upon the existing system and streamline it by ensuring greater reliability as well as greater objectivity. In this connection, amongst other recommendations the seminar recommended as follows :

(*a*) It attached the highest importance to the re-designing of question-papers. The bane of the traditional system has not been so much that it is external as that it is repetitive and stereotyped. Even while retaining the external framework, changes can be introduced within the system. The most obvious as well as the most crucial change is that of re-designing the question-papers.

Two myths in this connection need to be exploded. One, that the question paper must not expect answers to more than 5-6 questions. Two, that questions cannot be repeated from the question paper of the preceding year. These myths will take a long time to die but steps in this direction ought to be initiated rightaway.

As a part of the foregoing, question-papers shoud make only a partial use of the essay type questions Other types of questions can also be introduced so that the course content examined is not patchy but comprehensive and cramming gets discouraged. The seminar also made other detailed recommendations.

(*b*) Regarding the controversy of marks versus grades, the seminar was of the view that it is an unreal controversy The important thing for the universities is to ensure the relative ranking of a given batch of students in a particular examination If employing agencies as well a sprofessional institutions and universities in the country give due importance to this relative ranking (the percentile basis of awards) the unhealthy emphasis on marks and grades would disappear.

(*c*) One unfortunate feature of the conduct of examinations in recent years has been copying by the examinees on a mass scale in some universities This is a comment on the educational system as much as an expression of social tensions To the extent that the universities are concerned the problem ought to and can be overcome by (*i*) improving the tone and efficiency of teaching and (*ii*) by strengthening university administration A few universities have achieved these two objectives successfully as reported at the seminar.

(*d*) With the enormous increase in numbers the universities are finding it increasingly difficult to cope with the demands of examination work made upon them. To a considerable extent these difficulties can be and have been oercome by the use of mechanical aids. The seminar strongly recommended to all universities in India and Ceylon that each one of them should equip itself with data processing machines so that both efficiency and accuracy are ensured. It is also desirable to restrict the size of the university so as to enable it to function as an efficient unit.

(*e*) While it is important to strengthen the university administration all round, it is particularly important to strengthen the examination wings as most of the pressure of increasing numbers is felt at that point.

(*f*) The seminar expressed itself strongly in favour of introducing the semester system of examination wherever possible and feasible.

(*g*) And finally the seminar called upon the University Grants Commission and the Inter-University Board to organise a well staffed Unit at the national level for research into problems of examinations. This organisation can also promote the establishment of similar units in the various universities and colleges and also undertake training of people in the new techniques, locally as well as nationally The establishment of such a unit is of vital importance otherwise the situation is bound to deteriorate.

List of Participants

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55. Saranjit Singh, Prof. of Civil Engg., Indian Institute of Technology, New Delhi.
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59. Sinha, A.K., Controller of Examinations, Magadh University, Bodh Gaya.
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61. Sinha, L. P., Prof. of Political Science, Langat Singh College, Muzaffarpur.
62. Singh, B.M., Registrar, Allahabad University, Allahabad.
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66. Swani, N.M., Dean of Engineering, Indian Institute of Technology New Delhi.
67. Tandon, O.P., Deputy Registrar (Acad), Banaras Hindu University. Varanasi.
68. Taneja, V.R., Prof. of Education, Panjab University, Chandigarh.
69. Tare, N.B., Principal, Willingdon College, Sangli.
70. Thusu, K.N., Controller of Examinations, University of Delhi, Delhi.
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73. Vaidya, M.Y., Principal, Vidyawardhini Sabha's Arts & Commerce College, Dhulia.
74. Vasantha Ramkumar (Mrs), Lecturer, University Department of Education, University of Kerala, Trivandrum.
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List of persons who sent their papers but did not attend the seminar.

1. Adalati, A.N. Kaul, Principal, Government College of Education, Gwalior.
2. Arun Ray, Registrar, Calcutta University, Calcutta
3. Bakore, G V., Prof of Chemistry, Maharana Bhupal College, Udaipur.
4. Barrow, A.E.T., Secretary, Council for the Indian School Certificate Examinations, B-27, Nizam-ud-din East, New Delhi.
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6. Harper Jr., A Edwin, Bureau of Educational Research, Ewing Christian College, Allahabad.
7. Jain, O.P., Prof. of Civil Engg , University of Roorkee, Roorkee.
8. Jayasuriya, J.E., Prof of Education, University of Ceylon, Peradeniya (Ceylon).
9. Mehrotra, G.P., Principal, Bareilly College, Bareilly.
10. Mitra, Shib K , Prof. of Psychology, University College of Science, Calcutta
11. Panda, S.C , Deputy Registrar, Utkal Universtiy, Bhubaneswar
12. Ravi Prakash, Principal, Holkar Science College, Indore
13. Tandan, G.N., Registrar, University of Indore, Indore.

List of Observers

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17. Weaver, Fred H., Consultant, Ford Foundation, Lodi Estate, New Delhi.

Appendix A

Form for reporting cases of unfair means

————————————EXAMINATION, 19

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————————————————————————

Candidate's Roll No.————————Enrolment No————————

Name of candidate (with full postal address)————————

————————————————————————

Name of candidate's father————————————————

Name of institution (in case of college candidate only) ————————

Name of centre————————————————

Subject and paper in which the candidate is reported to have used or attempted to use unfair means	Subject———— Paper————

Day————Date————————Time————————

I. Particulars of books, papers etc. found in possession of the candidate and submitted along with the answer books and this report (All these should be signed by the Superintendent).

1. Name of book | 1. ————
 2. ————
 3. ————

2. Number of torn leaves of books ————

12. Sharma, J. Shakuntala (Mrs), Appraisal Division, Indian Statistical Institute, 203, Barrackpore Trunk Road, Calcutta.
13. Shukla, P.D., Chairman, Central Board of Secondary Education, Indraprastha Estate, New Delhi.
14. Singha, H.S., Reader, Department of Text Books, National Institute of Education, Mehrauli Road, New Delhi.
15. Singhal, R.P., Secretary, Central Board of Secondary Education, Indraprastha Estate, New Delhi.
16. Srivastava, A.B.L., Statistican, Asian Institute of Educational Planning and Administration, New Delhi.
17. Weaver, Fred H., Consultant, Ford Foundation, Lodi Estate, New Delhi.

Form for reporting cases of unfair means

————————————————EXAMINATION, 19

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Candidate's Roll No ————Enrolment No.————

Name of candidate (with full postal address)————

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Name of candidate's father————————

Name of institution (in case of college candidate only) ————————

Name of centre————————

Subject and paper in which the candidate is reported to have used or attempted to use unfair means	Subject———— Paper————

Day————Date————Time————

I. Particulars of books, papers etc. found in possession of the candidate and submitted along with the answer books and this report (All these should be signed by the Superintendent)

1. Name of book | 1.————
 2.————
 3.————

2 Number of torn leaves of books————

3. Number of (1) manuscript slips, (2) sheets, (3) blotting paper | 1. ______ 2. ______ 3. ______

4. Any other article | 1. ______ 2. ______ 3. ______

II. Statement of candidate to be obtained at once in his own handwriting

1. Were the above articles recovered from your possession, person, desk, etc? ______
2. Why did you have them inspite of clear instructions? ______
3. Did you make any use of them? ______
4. Have you anything else to state?______ ______

Certified that this statement was made in my presence.

Certified that the candidate declined to give any statement.
Certificate not applicable should be crossed by the Superintendent.

______ Superintendent

______ Signature of the candidate
Date______

Date______

III. Report of the invigilator

______ Signature of the invigilator

Date______
Time______

IV. Report of the Superintendent of the examination centre

______ Superintendent

Date ______
Time ______

V. Report of the Head Examiner:

1. Did the candidate make any use of the material?
2. If not could the candidate make any use of it:

Further report:
Recommendations:

Marks gained by the candidate in the paper——————

Date——————

——————

Examiner

VI. Recommendation (if any) of the Registrar

——————

Registrar

VII. Final order in the case

——————

Vice-Chancellor

CHARGE SHEET

Roll No. ——————

Candidate's name Sri ——————

Father's name Sri ——————

Address ——————

District ——————

Institution ——————

Centre ——————

It appears that you used unfair means and committed an act of moral offence as well as indiscipline——————while answering——————paper——————at the examination of 19—— in which you appeared on—————— from——————centre with——————as your Roll Number.

PARTICULARS OF CHARGES

The Invigilator/Centre Superintendent/University Inspector—————— ——————recovered from your possession on——————at—————— a.m /p m. while you were answering——————Paper—————— at——————Centre—————— from within/beneath your desk/answer-book/pocket——————

The Invigilator further reports that he found you copying/you had copied from the unauthorised material recovered from your possession.

The aforesaid unauthorised material related to——————paper, the questions of which you were answering.

In your signed statement dated——————given before the Centre Superintendent you have admitted that the aforesaid unauthorised material (   ) was in your possession at the time of its recovery and that you had made use of it in solving Q No ——————of—————— paper

The Centre Superintendent and the Invigilator concerned report that ou refused to give on the spot your statement on the charge-sheet issued o you by the Centre Superintendent and furhter/also refused to take second nswer-book issued to you by the Centre Superintendent, for writing urther answers to the said question paper.

————————————————————————

————————————————————————

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————————————————————————

You defied university's instruction No.————by exchanging your uestion paper with that of the candidate bearing Roll No.———— nd by giving solution of question No.————on the question paper/ lotting paper to the candidate bearing Roll No.————in the xamination room/————————on————————.

The Head Examiner reports that you could have made use of the aforeaid material in answering question No.————of———— 'aper and that you could have also made use of it if other questions/relatng to the aforesaid material should have been set in the said question paper.

You are charged for having used unfair means at the examination of 9———.

You are also charged for having committed an act(s) of indiscipline by efusing (*i*) to give on the spot your statement and your explanation to the Centre Superintendent, (*ii*) to put your signature(s) on the unauthorised naterial recovered from your possession/by swallowing the unauthorised naterials with the intention of destroying the material evidence against ou/by abusing, calling names to/using filthy language/by threatening the nvigilator(s) and the Centre Superintendent concerned/by running away rom the examination room before the scheduled time by————

————————————————————————

————————————————————————

t the university's examination of 19———.

There is a *prima facie* case against you that you used unfair means/ ommitted an act of moral offence/as well as indiscipline at the university's xamination 19———.

It is, proposed to take action against you under clause———of Examiiation (General) Ordinances of the University. You are asked to show ause why suitable action should not be taken against you under the aforeaid Regulation.

Your explanation should reach Registrar (by name) by———— 9————. On receipt of your explanation the Deans' Committee will onsider your case. If no explanation is received from you on of before he date mentioned above, the Deans' Committee will considere your case x-parte.

Registrar

Appendix B

Analysis of information received from the Universities

As part of the preparation for the seminar the Bord requested universities to supply information with regard to rules, regulations and practices in the field of examination work current in the various universities Fifty-six universities/institutions responded to the circular, though it cannot be [illegible]

ed, will be stimulated by the report of the seminar:

Semester System: The under-mentioned universities have introduced the semester system at the under-graduate level:

Faculty of Arts: (1) Agra (Home Arts), (2) Aligarh, (3) Meerut.

Faculty of Science : (1) Agra (Home Science), (2) Aligarh, (3) B.H.U (4) Meerut, (5) Poona, (6) Punjabi (Physics-Honours), (7) Shivaji.

Faculty of Social Sciences: Aligarh

Faculty of Commerce: (1) Aligarh, (2) B.H.U., (3) Meerut.

Faculty of Engineering: (1) Aligarh, (2) Allahabad, (3) Annamalai, (4) Gorakhpur, (5) Gujarat, (6) I.I.Ts. (Delhi, Kanpur, Madras), (7) Jadavpur, (8) Jodhpur, (9) Karnatak, (10) Kurukshetra, (11) Marathwada, (12) Mysore, (13) Nagpur, (14) Panjab, (15) Poona, (16) Punjabi, (17) Roorkee, (18) Sardar Patel, (19) Saurashtra, (20) Shivaji, (21) Venkateswara.

Faculty of Agriculture: (1) University of Agricultural Sciences, Bangalore, (2) J.N.K.V., Jabalpur, (3) B.H.U., (4) Punjab Agricultural University, (5) U.P. Agricultural University.

Faculty of Law: (1) B.H.U., (2) Delhi, (3) Meerut, (4) Saurashtra, (5) Udaipur.

When it comes to **post-graduate** courses, the situation is different in different faculties. In the Faculty of Arts, for instance, the following universities have introduced it.

(1) Agra (Social Work, Statistics & Sociology), (2) Aligarh, (3) Delhi (English, Mathematics, Punjabi, Urdu, Political Science and Social Work), (4) Madurai, (5) Meerut, (6) Saurashtra, (7) Udaipur.

In the Faculty of Science, the following universities have introduced it:

(1) Aligarh, (2) BHU, (3) Delhi, (4) Gorakhpur, (5) Madurai, (6) Meerut, (7) Poona, (8) Punjabi (Physics only), (9) Roorkee, (10) Sardar Patel, (11) Saurashtra, (12) Shivaji, (13) Udaipur.

Internal Assessment: Information with regard to this head is neither adequate nor clearly demarcated between under-graduate and post-graduate levels. On the basis of whatever is available, the under-mentioned universities have introduced the system of Internal Assessment in the various faculties as mentioned against their name:

(1) University of Agricultural Science, Bangalore (Agriculture), (2) Aligarh (all faculties), (3) Annamalai (Engineering, Agriculture and Education), (4) Delhi (M.A. in English only), (5) Gauhati (Medicine, Engineering and Science—practicals only), (6) Gujarat (Arts, Science, Commerce and Medicine), (7) I.I.Ts. (Delhi, Kanpur, Madras)—(Engineering), (8) Karnatak (Engineering), (9) Madurai [B.Sc. special degree course, M.A. (English only) and B.E.], (10) Marathwada (Engineering, Medicine), (11) Mysore (Engineering, Education and Master degree courses), (12) Panjab (Pre-Medical, Pre-Engineering and B.Sc.—Practicals only), (13) Poona (Science and Engineering), (14) Punjab Agricultural University (Agriculture), (15) Roorkee (Engineering), (16) Sardar Patel (Science and Engineering), (17) Saurashtra (Arts, Science and Commerce), (18) Shivaji (Science), (19) S.N.D.T. (Home Science and Education), (20) Sri Venkateswara (Medicine and Engineering), (21) Udaipur (Agriculture), (22) U.P. Agricultural (Agriculture).

Scrutiny of Marks: Pre-scrutiny of marks is done by the following universities before the declaration of the results. At other places the checking of marks is done only on students' request.

(1) Baroda, (2) Gauhati, (3) Jadavpur (B.A. & M.A.), (4) Karnatak, (5) Meerut, (6) Nagpur, (7) Sardar Patel, (8) Shivaji, (9) S.N.D.T.

Scaling of Results: Only the University of Gauhati has experimented succesfully with the scaling of results.

Re-assessment of Scripts: Two universities, Agra and Meerut, have provision for re-assessment of scripts. This can be done on the request of candidates on payment of a re-examination fee. In case the re-assessment differs from the earlier assessment by more than 15, 8 and 5 or more marks carrying 100, 50 and 25 marks respectively the fee is refundable. The decision to permit re-assessment is with the vice-chancellor who appoints three outside examiners, one of them ordinarily a paper-setter, for this purpose. The average of the three is regarded as the final score.

All these details refer to Meerut University. Agra which is the other university to embark upon this experiment is in the process of evolving its own procedures.

Frequency of Examinations: The following universities have provided for the university examination at the end of each year of their degree course: (1) Allahabad, (2) Awadhesh Pratap Singh, (3) B.H U. (B.A.), (4) Bhagalpur (B.Sc. & B.Com.), (5) Bhopal, (6) Burdwan, (7) Calcutta, (8) [illegible]

Re-appearance at University Examination: The following universities have allowed their postgraduates to re-appear at the examination to improve their division: (1) Delhi, (2) Gauhati, (3) Meerut, (4) Panjab,(5) Punjabi, (6) Shivaji, (7) Udaipur.

Mechanical Aids: Though the necessity of application of mechanical aids is widely recognised, only the following universities have taken the help of mechanical aids in streamlining their examination processes so far: (1) Baroda, (2) Gujarat, (3) Mysore, (4) Punjabi, (5) Sardar Patel, (6) Shivaji, (7) Sri Venkateswara.

Examination fees: The fees charged for the under-graduate and the post-graduate examination in the faculties of arts, science, commerce, medicine engineering and agriculture show wide divergence. The details are given on the next pages.

STATEMENT SHOWING EXAMINATION FEES

NOTE : + Fees given in order of
£ Fees given in order of
* Fees per semester.
%Information is partial.
NA—Not Available.

(Fees in Rs.)

Name of University	B.A./B.Sc./B.Com.+			M.A./M.Sc./M.Com.+	
	Part I	Part II	Part III	Previous	Final
1. Agra	27/27/27	27/27/27	—/—/—	27/27/27	37/37/37
2. Aligarh	(10/10/10)*	(10/10/10)*	(10/10/10)*	(15/15/15)*	(15/15/15)*
3. Allahabad ..	25/25/25	35/35/35	—/—/—	30/30/30	40/40/40
4. Annamalai ..	NA/NA/NA	NA/NA/NA	NA/NA/NA	70/75/70	80/100/80
5. A. P. Singh ..	30/35/30	30/35/30	40/45/30	45/50/45	45/50/45
6. B.H.U.	42/42/30*	42/42/30	—/—/30*	34/34/60	34/34/72
7. Berhampur ..	50/50/50	50/50/50	50/50/50	40/40/40	45/45/45
8. Calcutta	25/25/25	30/30/30	—/—/—	50/50/—	50/50/80
9. Delhi	15/15/15	15/15/15	15/15/15	(15/15/15)*	(15/15/15)*
10. Dibrugarh ..	25/25/25	30/30/30	—/—/—	75/75*—	75/75/—
11. Gorakhpur ..	30/30/30	30/30/30	—/—/—	30/26*/30	/40/27*/40
12. Gujarat	30/40/30	40/45/40	50/50/50	50/75/60	50/75/60
13. Indore	20/20/20	30/30/30	30/30/30	30/30/30	40/40/40
14. Jadavpur.. ..	30/30/—	40/30/—	—/—/—	—/45/—	80/45/—
15. Jiwaji	22/27/22	32/32/32	32/32/32	32/37/32	42/42/42
16. Jodhpur	33/33/33	33/33/33	40/40/40	27/27/27	40/40/40
17. Kalyani	40/40/—	45/45/—	—/—/—	50/60/—	50/60/—
18. Karnataka ..	40/50/40	40/50/40	40/50/40	50/60/50	50/60/50
19. Kurukshetra ..	28/33/28	28/33/28	28/33/38	48/63/—	48/63/—
20. Mysore	40/40/40	—/—/—	50/60/50%	50/50/50	70/70/70
21. Nagpur	35/40/35	45/45/45	—/—/—	45/50/45	45/50/45
22. North Bengal ..	30/30/30	30/30/30	—/—/—	NA/NA/NA	NA/NA/NA
23. Osmania ..	NA/NA/NA	NA/NA/NA	NA/NA/NA	44/55/44	44/55/44
24. Panjab	26/31/36	26/31/36	31/31/36	55/75/61	55/75t71
25. Poona	40t60t40	40t50t40	—t—t—	45t60*/55	45/60*/55
26. Punjabi	25/30/35	25/30/35	30/30/35	54/60/—	54/60/—
27. Rajasthan ..	35/35/35	35/35/35	42/42/42	29/29/29	42/42/42
28. Ravishankar ..	30/35/30	30/35/30	30/35/30	45/50/45	45/50/45
29. Roorkee	—/—/—	—/—/—	—/—/—	—/70/—	—/70/—
30. Sambalpur ..	25/25/25	50/50/50	—/—/—	40/40/—	45t45t85
31. Sardar Patel ..	33/43/33	43/53/43	53/63/53	60/60/60	60/60/60
32. Saurashtra ..	32/42/32	42/47/42	52/52/52	—/—/—	102/152/122
33. Shivaji	40/60/40	40/30%/40	40/30%/40	45/60/55	45/60/55
34. S.N.D.T... ..	40/—/—	60/—/—	—/—/—	50/—/—	50/—/—
35. Sri Venkateswara	32/32/32	60/65/60	—/—/—	42/42/42	42/42/42
36. Udaipur	35/35/35	35/35/35	40/40/40	40/40/40	40/40/40
37. Vikram	30/35/30	35/35/35	40/45/40	45/50/45	45/50/45

CHARGED FOR VARIOUS COURSES

Arts, Science and Commerce
Medicine, Engineering and Agriculture.

M.B.B.S. B.Sc (Engg) or B E /B.Sc (Ag)*£				
Part I	Part II	Part III	Part IV	Part V
27/42/27	22/47/37	57/52/—	52/57/—	—/—/—
40/25/—	50/25/—	55/35/—	—/35/—	—/35/—
NA/NA/25	NA/NA/35	NA/NA/35	—/—/—	—/—/—
NA/40/30	NA/40/30	NA/40/40	NAt50t50	NAt60t—
40t60t—	60t60t—	60t60t—	—t60t—	—t60/—
NA/NA/44	NA/NA/44	NA/NA/44	—/NA/44	—/NA/—
50/—/—	35/—/—	25/—/—	60/—/—	—/—/—
15/40/—	35/50/—	15/—/—	40/—/—	40/—/—
NA/NA/NA	NA/NA/NA	NA/NA/NA	NA/NA/NA	NA/NA/NA
60/60/—	50/60/—	50/60/—	—/60—/	—/60/—
—/55/30	—/55/40/	—/55/—	—/55/—	—/—/—
40/40/—	50/40/—	75/60/—	—/75/—	—/100/—
35/50/—	60/55/—	60/65/—	—/65/—	—/70/—
—/NA/—	—/NA/—	—/NA/—	—/NA/—	—/NA/—
40/NA/—	80/NA/—	80/NA/—	—/NA/—	—/NA/—
—/70/—	—/70/—	—/70/—	—/80/—	—/100/—
—/—/40	—/—/45	—/—/NA	—/—/45	—/—/—
60/40*/—	30/40*/—	50/70/—	100/70/—	—/—/—
—/28/38	—/33/38	—/38/43	—/38/48	—/43/—
30/30/—	20/30/—	20/30/—	30/30/—	—/60/—
50/60/—	60/60/—	70/60/—	—/60/—	—/60/—
50/40/—	NA/40/—	NA/40/—	NA/40/—	NA/40/—
55/22/—	72/22/—	83/30/—	—/35/—	—/45/—
56/40/41	56/45/51	81/50/61	—/55/71	—/—/—
60/70/—	65/70/—	70/90/—	—/90/—	—/—/—
55/85/—	55/95/—	80/105/—	—/115/—	—/—/—
35/67/35	67/67/35	82/67/42	—/82/—	—/102/—
40/80/—	60/80/—	60/80/—	—/80/—	—/80/—
—/60/—	—/60/—	—/60/—	—/100/—	—/—/—
50/25/—	35/30/—	25/40/—	60/45/—	—/60/—
—/43/43	—/53/53	—/63/63	—/73/—	—/103/—
42/42/52	52/52/62	71/62/72	—/77/—	—/—/—
60/30/—	65/30/—	70/30/—	—/100/—	—/—/—
—/—/—	—/—/—	—/—/—	—/—/—	—/—/—
121/42/—	72/42/—	105/60/—	—/60/—	—/60/—
—/—/40	—/—/40	—/—/40	—/—/	—/—/—
40/50/—	25/50/—	60/60/—	80/60/—	—/60/—

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DOCUMENTS

Formulating Educational Objectives

R S. TRIVEDI

THE BASIC QUESTION in the direction of examination reforms is why are we imparting instructions? What is the purpose? What are the goals? This basic issue needs a little clarification, for, the science of examination demands correlation of objectives, programmes and procedures of instructions. The end product ultimately be evaluated in terms of knowledge, skills and ability to use knowledge and skills developed during his stay at the university.

ness. In short, the total picture of the product of the university should be that students should be properly cultivated men and women because, after all, they will be the leaders in different spheres of life

It is desirable that these aims should be made more specific to enable the university teacher to visualise the desired outcomes. A good teacher is not interested in seeing *hat the students are but what they become.*

MAJOR OBJECTIVES :

(i) to develop up-to-date knowledge of principles, facts, concepts, theories, procedures, etc;
(ii) to develop varied types of skills;
(iii) to develop self-study habits;
(iv) to develop the ability to apply the acquired knowledge and skills in new situations;
(v) to develop ability in critical thinking (Part of (iv));

(vi) to develop varied interests, *e.g.*, in academic pursuits, practical work, research, etc.

(vii) to develop the scientific attitude (analytical mind).

To be more definite it is very necessary that these objectives are made more specific in terms of 'Course objectives'.

The analysis of some of the major objectives in terms of specifications is given below as an illustration.

KNOWLEDGE :

the ability to recall facts, theories, etc., in a selective manner;
the ability to be aware of the sources of knowledge;
the ability to discriminate values, ideals, etc.;
the ability to recognize principles, facts, etc.;
the ability to see relationships;
the ability to classify facts, etc., on the basis of developed criteria;
the ability to organise facts, etc., into a meaningful whole;
the ability to draw conclusion or infer;
the ability to compare facts, principles, theories, processes, etc.;
the ability to explain in technical terms precisely and accurately concepts, phenomena etc.

NOTE : To realise the above, it is felt that the pre-requisite should be (i) the ability to listen to oral talks, lectures, etc., with concentration and (ii) to judge a lecture and note down salient points. This is pointed out because at present 'Lectures' dominate the instructional programme in the colleges.

APPLICATION :

the ability to apply principles, criteria, etc., in new situations;
the ability to interpret phenomena, findings, etc;
the ability to predict the course in a reaction, etc;
the ability to detect errors and rectify them;
the ability to devise new procedures, apparatus, etc.; and
the ability to design new plans, tools, etc.

SKILLS :

The basic or the fundamental skills in the theoretical and operational aspects are acquired by students as part of the knowledge. When these skills are used in an unfamiliar situation there is scope for application of the acquired skills.

the ability to plan experiments, etc;
the ability to perform experiments, etc;
the ability to manipulate instruments, etc.
the ability to do computational work;
the ability to draw sketches and diagrams;

the ability to draw technical drawings;

the ability to tabulate data;

the ability to calculate & interpret the tabulated data;

the ability to handle tools, machines, etc.

In addition to the above, it is to be considered that some competencies are exclusive to the fields of Arts & Humanities. A few illustrative abilities are given below:

ability to recognize form and pattern in literary works as a means of understanding their meaning;

ability to be aware of acceptance usage of articles; pronunciation, capitalisation, etc., as a means of effective presentation;

ability to read significant writings with critical comprehension;

ability to listen to oral talks with concentration and to critically judge the same;

ability to write with proper organisation of ideas;

ability to write for pleasure, entertainment and for providing information for others;

ability to develop individual style of writing;

ability to deliver extempore speeches.

INSTRUCTIONAL PROGRAMMES TO DEVELOP DESIRED COMPETENCIES

The factors which have direct impact on the attainment of the objectives are :

(i) courses of studies,
(ii) teaching procedures,
(iii) medium of instructions,
(iv) library and laboratory facilities,
(v) the college schedule.

The factors having indirect impact are :

(i) admissions,
(ii) the structure of the classroom,
(iii) administration and organization of the college,
(iv) discipline and general tone of the college,
(v) activities usually known as cultural and extra-curricular,
(vi) the nature of appointments of college teachers.

This classification is neither rigid nor all-inclusive, it is only suggestive.

The direct as well as the indirect factors are so much interrelated that it is not possible to isolate the impact of a single factor from that of others.

In the context of the impact of these factors, any reform in examination is worth thinking. Any innovation for the sake of innovation and devoid of reality-context will serve no purpose.

Some of the universities have introduced semester system in a typically Indian style. The entire paper-oriented attitude has been shifted to course-orientation. The natural outcome is instead of giving more opportunities

to talk, to read, to discuss, to refer to other resource material, students are subject to various types of examinations in the form of quizzes, short tests, etc. The new Indian semester style is examination ridden instead of learning-oriented. The failures are turned out compulsorily as dropouts instead of being given opportunity to improve by relearning. The results are declared yearwise and courses are conducted semester-wise. In some places semester-evaluation is continued with external-examination pattern of instruction. It is to be remembered that semester is a pattern of instructional procedures and not evaluation procedures.

Therefore, to improve examination system in India the first requisite is to make our objective clear and specific and to bring a radical change in the instructional programmes of higher education.

SUGGESTIONS FOR CHANGE :

1. Let experience and performance gain greater importance.
2. Let the individuals be judged on what they can do rather than where and how long they have gone to school.
3. Try people on jobs and assess their performance.
4. Cultivate talents in those who are now disadvantaged.
5. Recognise the educational and occupational potential of many who have difficulty with educational systems as they are presently conducted.
6. Accept education and training as a discontinuous process in the case of those who had not the benefit to continue education. Give them scope to re-enter and benefit from education.
7. Once a dropout is always a dropout; this belief be soon discarded.

Question Setting and Instructional Objectives

R. P. BURN

LECTURERS REGULARLY COMPLAIN that students are only willing to study for their examinations This complaint assumes that there is some other kind of study, different from that which brings success in the examinations which the lecturers wish students to be involved in Yet it is on the basis of the examinations that degrees and grades are awarded and it is unreasonable to expect that the exhortations of the lecturers will be sufficient to induce creative study in the majority of students

The complaint that students only study for their examinations is usually taken as a complaint against the character of students, but it might be more realistic to take it as a complaint against the character of the examinations. If the examinations were a valid test of intellectual ability, then there would be no reason to criticise students for preparing seriously for them.

What then would be the difference between our existing pattern of examinations and a pattern that tested intellectual activity more adequately? To answer this question, we must say precisely what intellectual ability is Much research has been done on this question during the last fifteen years and I offer the following brief summary:

Class A. Knowledge of facts, methods, techniques and principles.
Class B. Ability to translate, summarise, apply, analyse, synthesis and evaluate.

Intellectual abilities in class A are tested by asking a student to repeat what he is already familiar with. Intellectual abilities in class B are tested by asking a student to respond to an unfamiliar situation. The higher abilities in class B (the last three) may not be realistic objectives for all our students, but the lower abilities in class B (the first three) are simply the ability to understand and use class A knowledge. These we must regard as part of our basic instructional objectives.

The lecturer's complaint that students work only for examinations is legitimate so long as the examinations are merely a test of knowledge by repetition. If we can compose examinations which test a student's response to the unfamiliar also, we will have taken a big step towards the correlation of question-setting with adequate instructional objectives. Let us admit however that the clarification of instructional objectives is an important and necessary task in relation to each course of study. As universities we have before us the example of NCERT which, in relation to high schools has done far more than any university I know to rewrite syllabuses in the form of educational objectives.

Our present system of examinations is for the most part a sequence of essay-type questions testing the capacity to repeat information and techniques. Essay questions can be used to test the highest intellectual abilities, but whether they are used in this way depends more on the valuer than on the paper-setter. The very open-endedness of essay-type questions is both their strength and their weakness; their strength, because they leave room for the most able students to show themselves; their weakness, because there is no check to pevent either students or valuers treating the questions as tests of knowledge only.

If we are looking for a precise correlation between question setting and instructional objectives, essay questions are of very little help, and I fear that, temporarily at least, their importance in our pattern of examining may have to be reduced. We will obtain precision if and only if we can set questions which demand the exercise of the intellectual skills we wish to test and which do not leave room for misinterpretation or devaluation by lecturer or valuer.

There are three ways of setting questions which do this. One is the short answer question which may be illustrated by the following example.

Example 1. Write complete, grammatical, intelligible and neat answers. You will be graded on all these features.

(a) List the assumptions of the Kinetic Theory of Gases.

(b) Name two physical phenomena explainable by this theory.

(c) Define temperature in terms of the Kinetic Theory.

(d) (i) Sketch a graph of Charles' law labelling the axes with appropriate physical quantities.

(ii) What does the origin represent ?

(e) How would you prove *experimentally* that some molecules move faster than others at the same temperature?

In this example, the essay question "Discuss the Kinetic Theory of Gases" has been broken down into a number of short answer questions. This form of question is particularly suitable for literature exams. Another way of making precise demands on a student is to ask him to supply part of a sentence that is missing.

Example 2. On heating a mixture of solid chloride and solid potassium dichromate with concentrated sulphuric acid,....is formed.

A third way, that is now becoming a very widely used form is the multiple-choice question.

Example 3. Which of the following economic policies is most likely to

produce effects that are inconsistent with the effects of the others :

(a) Liberalizing instalment buying plans.
(b) Increasing public works spending
(c) Lowering interest rates.
(d) Increasing expenditures for industrial plant and equipment.
(e) Increasing taxes.

In order to use these short questions effectively it is necessary for the ... precise- ... item of ... tion can be built up.

INTELLECTUAL ABILITIES:

		Knowledge	Under-standing	Applica-tion	Creative Thinking
SYLLABUS	1.				
CONTENT	2.				
SUBJECTS	3.				
	4.				
	5.				

This blue-print should show how the questions ought to be distributed between the various topics and the intellectual skills.

The actual construction of short questions is itself a special skill. In particular, the technique of setting valid and reliable multiple-choice tests ... all educators ... t may be useful ... " by Ebel and "Constructing Achievement Tests" by Gronlund, both published by Prentice-Hall and also the material available from the Educational Testing Services, Princeton, USA. The paper-setting committee at least will require special training in this science. Such a training programme is a realistic proposal because compared with either the lecturers or the valuers, the paper-setters are a small group. Moreover the influence of this small group dominates almost all the classwork in our universities.

SUMMARY:

The essential reform that we require is to include in our examinations, not only tests of knowledge, but also tests of understanding, application and the student's response to new situations. Such tests can be built in to the usual written examinations if educational objectives have been clearly stated and questions demanding a specific limited response are set. The construction of such tests requires special training for the paper-setters.

Designing of Question Paper

D. M. DESAI

IMPROVEMENT OF EVALUATION TOOLS

ONE CRUCIAL ASPECT of examination reform at any stage of instruction is the improvement of evaluation tools. Improvement of tools would involve : (1) pressing into service a variety of tools that would be most relevant and appropriate to different instructional objectives that are to be measured and (2) perfecting and sharpening each of these tools technically. The most disturbing inadequacy of examinations in the school system as well as in colleges and universities is that the essay question is being used as the sole tool of examination; not only that, enough care and competence do not always go into the framing of essay questions. A good programme of examination should use a variety of evaluation tools, such as the essay test, the short-answer questions, the objective type items, the guided written assignments, the tutorial term papers, field work or practical work report, book reviews, critical notes, viva-voce, etc. The tools should be adequate, in variety as well as in types, to the instructional outcomes that are to be appraised. This paper is limited to the discussion of the technical aspects of framing an examination question paper and the improvement of its individual questions.

PLANNING ON EXAMINATION QUESTION PAPER

A good examination question paper needs careful, adequate and appropriate planning. When it is used to appraise the full one year study, comprising of many hours of work done by students and decide the academic future of hundreds of students, a good deal of thinking and care should go into the framing of each question paper in the examination, and appropriate decisions should be taken in regard to its various aspects and components. A good Question Paper cannot be framed without *pre-planning*.

[illegible]

content to be covered; (4) scope and length of individual questions in the [illegible]

[illegible]

rent content areas; and (8) the time factor.

This kind of planning would amount to the preparation of a *Two Dimensional Chart* or the Blue Print of the Question Paper and taking decisions on: (1) the total time to be allotted to the question paper (which is usually [illegible]
vidual [illegible]
and (b) [illegible]
application, critical reasoning and appreciation, and (4) whether options are to be provided in the question paper.

I will briefly deal with these aspects of the planning of a Question Paper

PREPARATION OF A TWO DIMENSIONAL CHART

It will be necessary for the Chairman of the Board of Paper Setters to prepare before hand the draft plan of a Two Dimensional Chart for the Question Paper. This can be finalised later on by discussion in the meeting with the other paper setters. The Chart should specify at least the following: (1) On the horizontal side, the instructional objectives that are to be measured; (2) On the vertical side, the content areas in which the questions are to be set; (3) In each of the box framed by giving the lines under 'objective' and 'content area', the number of questions to be set should be specified

An illustration of a Two Dimensional Chart for a Pre-University Examination in Biological Science is given in Table 1. Each box framed objective—content wise includes the number of short answer questions (A short answer question is one which can be answered briefly in specified number of sentences).

The Two Dimensional Chart like the one above, would ensure better coverage of the prescribed syllabus (this would result in the CONTENT VALIDITY of the examination).

Coverage of the instructional objectives. (This would result in the improvement of the constructive validity of the examination to some extent and pave a way for planning for improved teaching—learning which would ultimately improve university standards).

Increase in the number of questions. (This will result in the improvement of the reliability of examination, as the longer the test, the more reliable it is).

In the above illustration, the form of the questions envisaged is of the Short Answer type. But it can be of the objective type too. Thirty good Multiple choice type of test-items can also be very well prepared. The

essay form of question can also be used. In that case 6 to 8 essay type of questions can be set each having 2 or 3 sub-questions based on any of the instructional objectives listed horizontally in the Blue Print.

TABLE 1

Instructional Objectives

Content aspects	Understanding of important facts & principles	Familiarity with dependable sources of information	Ability to interpret data	Ability to apply principle	Total questions
A. Function of Human Organs.					
(1) Nutrition	1	1	1	1	4
(2) Digestion	1	—	1	1	3
(3) Circulation	1	—	—	1	2
(4) Respiration	1	—	1	1	3
(5) Reproduction	1	1	—	—	2
B. Uses of Plant and Animal Resources					
(1) Energy relationships	1	1	1	1	4
(2) Environmental factors conditioning plant and animal growth	1	1	1	1	4
(3) Heredity & Genetics	1	—	1	—	2
(4) Land Utilisation	1	1	1	1	4
C. Evolution and Development	1	1	—	—	2
TOTAL :	10	6	7	7	30

SOME IMPORTANT DECISIONS

The planning of a question paper would also involve some important decisions. In most cases the question paper will be of three hours duration. This is because question papers in university examinations are each usually

of three hours duration. A three-hour question paper has become almost

can cover larger content area in a shorter period time, are adopted.

of teaching, recall and rote memorisation of isolated bits of information should have least weightage. Questions testing really understanding and knowledge should have half the weightage, and the remaining portion of ation, Interpretation, Cri- nd of a scheme of weight- questions, it will have ity teachers and students plan their respective work keeping an eye on what is asked in university examinations. If university question papers include penetrative questions involving challenging intellectual tasks, they would also tend to attune their teaching-learning techniques and habits to meet those demands. This is because, university examinations reign supreme and powerfully in the academic realm Of course, this should not be the case. But the present situation can be exploited to improve teaching-learning in colleges and university departments.

The third important decision would pertain to distribution of marks in different questions. All questions cannot carry the same number of marks. The weightage in marks would depend upon the importance of the instructional objective and of the content area. Questions of Application or Critical reasoning should have more marks allocated to them than of simple recall or knowledge types. Similarly, some content area will receive more marks than others which are of less importance

The fourth important decision would relate to the question whether options are to be provided or not. This is a difficult decision because options have been in use for a long time, and students as well as teachers are so much accustomed to the use of optional questions in examinations, so much so, that if options are not provided in University Examinations, it might provoke student wrath and agitation. Two wrong beliefs or misconceptions prevail regarding the use of optional questions: firstly, options give confidence to students when attempting a Question Paper and secondly paper-setters are able to cover more adequately, the syllabus through the system of options.

However, the provision of optional questions in a Question Paper makes examination less valid, reliable and fair. It is almost impossible to frame or select a number of questions of *equal* difficulty level, involving the *same* amount of time and calling forth the *same* mental effort on the part of the examinees. "Even assuming that two questions have the same difficulty
sary to pr
standard
the provi

questions cannot be done away with immediately. That would not be a good strategy for examination reform. As a transitional measure, options should be provided internally, *i. e.* for individual questions and not on an overall basis with the format "Attempt any *five* questions" And that too, for introducing questions involving cirtical thinking and application abilities.

These are the four inherent important decisions in the planning of a good Question Paper.

FRAMING OF INDIVIDUAL QUESTIONS

The framing of individual questions effectively forms the second important constituent of better university examinations. Each question should receive utmost care and time from the paper-setter.

The following are some of the important criteria which each question should satisfy individually :

1. A question should be sharply based, as far as possible, on the instructional objective to be evaluated as well as the content area of the prescribed syllabus.
2. It should make use of the testing situation that is different from what was used by the teacher while teaching and what is given in the Text book and other materials. It should be a *new* situation.
3. The wording should be so clear, unambiguous and precise that a question would mean the same thing to the paper-setter, to the candidate and to the examiner.
4. The language should be simple and straight forward so that a student with average intelligence and achievement should have no difficulty in understanding what the question asks for.
5. It should not be too difficult so that none or a very few of the examinees can answer it correctly, or too easy for all the examinees to answer it correctly. It should be able to discriminate between those groups of students who 'know' and those who 'do not know'.
6. Individual questions should have varying difficulty level from 'easy' to 'quite difficult'. About 50 per cent of the questions should be such as can reasonably be expected to be attempted by average achievers (students); a few—say about 20 per cent should be simpler than that (which should be placed in the beginning of the order of questions in the Question Paper in order to encourage and motivate the examinees) and about 30 per cent should be of gradual increasing difficulty so as to screen out the able and talented from the entire group of examinees.
7. The directions prefacing each question should be also simple, precise and unambiguous.
8. The scope and length of each question should be clearly indicated by providing directions, such as "answer in not more than 400 words".

CONCLUSION

Examinations can be made an ally of good education. For that the processes and procedures associated with examinations should be refined and made more scientific. While it is very necessary to approach examination reform [illegible]

it is equally necessary to enrich and improve the evaluation tools. It is said that 1 out of every 4 failures in university examinations in India is due to the imperfect, unscientific and slip-shod way in which the examinations are planned, constructed and administered. If we expect every teacher to teach well, we should also expect every teacher to frame a good Question Paper and write effective individual questions. This would require in-service education of our college and university teachers. The University Grants Commission [illegible]
tion workshops for it [illegible]
papers and writing e [illegible]
examination reform movement at the grass root level

Educational Testing: Relevance to India

A. EDWIN HARPER, JR.

FOUR YEARS AGO the author had the privilege of visiting psychologists and educators in a half-dozen East and South Asian countries. He found that in the fields of educational and vocational guidance, and in the development of aptitude ability, and achievement tests, we in India are, by a wide margin, the leader in this part of the world. And yet in what we call "examination reform"—which, in many ways, is an applied aspect of the specialities mentioned above—we in India are the most backward of all. We have the knowledge and ability for good educational testing. Why has it not been applied?

The use of examinations for selections was an invention of the Chinese, more than two thousand years ago. But it was not until the beginning of the twentieth century that scientific thinking and methods began to be applied to the assessment of human intelligence. The first modern individual intelligence tests began in France about 1905. The group intelligence test, for large-scale evaluation, received its first large development under the pressures of the recruitment drives in America in the First World War. Shortly after that it came to be realized that the same objective methods which were used to assess intelligence could also be applied to measuring scholastic aptitude, ability and achievement. (Those who think that "objective examinations" measure only memory and not thinking should ponder their origin—surely intelligence tests are not tests of "mere memory".) In 1942, through a combination of circumstances, the College Entrance Examination Board in the U.S.A. began to shift to purely objective type examinations and other forms of modern educational testing. The results were dramatic. Alden Dunham, formerly Director of Admissions of Princeton University, italicizes this sentence in a recent article on college admissions : "*There is no doubt whatsoever that the current form of the College Board tests*

has been a major factor in promoting social mobility in the United States."[1] The older Board examinations had been much like those of most Indian matriculation boards. They were essay-type exams. The students from superior schools were specifically coached on how to pass these exams—those from ordinary schools usually failed them Furthermore, students from upper socio-economic levels, who had been brought up by educated parents, had the linguistic fluency necessary to do well in the traditional essay-type exams—those from poor and uneducated homes did not. But when "writing your answer in good English" was replaced by "thinking and choosing the best answer from among those listed", this linguistic handicap was largely undercut. (This is not to deny the importance of correct language—but that should be measured in examinations of language, not of mathematics or economics) It was found—much to the surprise of many—that there were very many able students of physics, chemistry, history, civics, who were able to show their ability on the new-type tests as they had not been able to on the old In a word, if we believe that educational opportunity (and university admissions) should be based on mental ability rather than on socio-economic status, the new-type tests have more than demonstrated their value.

[illegible]

an exaggeration of course, that the traditional essay-type test is primarily a measure of physical stamina) Thus the efficiency of examinations was greatly increased, and instead of taking several weeks the American matriculation examination is now completed in a single day. At the same time, its validity —as measured against subsequent university marks—has substantially increased More validity in less time—and the time formerly wasted in examining can now go into educating which (rather than examining) *should* be considered the prime purpose of the university (Is it? Someone has said, "India has no educational system—only an examination system.")

We do not mean to imply that in America *only* so-called objective tests are used. All types of examination questions have their place. However in large-scale public examinations, in England as well as in America, the efficiency of modern educational testing methods is more and more considered to outweigh whatever limited advantages the traditional examination may be thought to have.

What are these "objective-type" tests? Most Indian students have at one time or another studied Wordsworth's "The World is Too Much With Us." Try this question : from among the possible answers given, you are to select the *one best* answer.

In the line "The World is too much with us : late and soon", "the world" refers to :

A. The earth on which we live.

B The other countries of the world.

1. E. Alden Dunham, "A Revolution in Admissions", *Princeton Alumni Weekly* Nov. 15, 1966

C. Heaven.

D. A spirit of materialism.

This question appeared in an English examination in our college in India. We did a statistical analysis of the results (one of the incidental advantages of this type of exam), and found that almost all of the best students (as judged by their total marks on 120 questions answered in two hours) had selected answer D. Of the weak students, on the other hand, more than twice as many selected A as D. The weak students had only read the words literally and so they chose the literal answers. Only the best students had understood the poem as a whole, and applied that understanding to their interpretation of this isolated line. What is required to pass this question is not just book knowledge of English poetry— it is poetic understanding and appreciation.

It is obvious that objective-type questions can measure more than mere memory. But how about the possibility that students answer correctly just by guessing? Some students, of course, do get the answer by guessing. But this proportion is not significant. If *all* students only guessed, then 1/4 would guess right and 3/4 would guess wrong, just by chance. Thus the maximum that any student can get just by guessing is, on the average, 25%, so a student who knows nothing cannot possibly pass. In practice, however, students guess on only a few questions. Since only 1/4 of these few will be "right" just by chance, this has little effect on their marks. Furthermore, even this effect can be largely eliminated by a simple statistical correction. This correction formula reduces the marks on the guessed questions to zero.[2]

Many of the other objections often raised to objective-type examinations have equally simple technical answers. And incidentally, the superiority of objective over traditional examinations does *not* lie primarily in the mechanical objectivity with which they can be marked. It lies rather, in the fact that many more questions can be asked in a given period of time, that the entire course (rather than just parts of it) can be covered, that the student can be forced to think, judge, discriminate, rather than just spout things memorized from a book. Nor is the examiner's judgement eliminated. The writing of a large number of questions, and selecting the best for the test, requires a great deal of highly skilled judgement. The only difference is this : This judgement is applied to examination writing, and therefore affects all candidates equally—whereas in essay-exam marking, judgement

2. Divide the number of questions answered wrong by one less than the number of choices per question, and subtract this from the number right. If there are five suggested answers to every question, one-quarter of the number wrong is subtracted from the number right. Suppose that, out of 100 questions, a student knows the answers to 60, and guesses the remaining 40. Of the 40 guessed, the average student would get 1/5, or 8 right, and the rest wrong.

		Right	Wrong	
Answers known		60	0	
Answers guessed		8	- 32	(total guessed—40)
TOTALS		68	32	
Subtract 1/4 of Wrong—32/4	—	—8		
CORRECTED SCORE		60		—answers known

varies from time to time, and is applied differently to different candidates in the same examination.

Another wide-spread belief among those who do not yet understand [illegible]

numbers are large they are not only used for admission to postsgraduate studies, but even, in such fields as medicine and law, for certification at the highest postgraduate levels In India they have been quite successfully used in selecting M.A. and M.Sc. graduates for further study

RELEVANCE TO INDIA

All that we have said thus far may sound radically new to many of our readers. Yet there have been close to a hundred research articles on this subject published in India already [1] (See References at the end of this [illegible]

use which has been made of modern educational testing methods in India is apparently quite unknown to the vast majority of college professors in India.

Besides assessing classroom achievement, there are three major uses of educational tests which have been used successfully in India : Selection, placement, and guidance. A fourth may soon be added, maintenance of standards.

SELECTION

It is time that we begin to substitute selective admission for selective graduation[3] When educational facilities are limited, every potential failure who is admitted implies that a potentially successful student has been denied a seat in the university. Not only are human beings thus being deprived of their potential for full development, but also the money spent on educating a student who fails his finals may be largely wasted. The problem, of course, is *how* to predict how well a student will do in his course. Traditional methods—high school board marks, interviews—have often proved notoriously unreliable. (The failure rate in universities would not be nearly so high these marks actually predicted well.) Even where the marks of some boards do seem to be more reliable, institutions are faced with selecting students who have appeared under several different boards with no commonly accepted standard. Thus many institutions now conduct their own admission tests. However all too often these examinations are of the same old inefficient, expensive, unreliable type as the higher secondary boards are using

It is here that modern educational testing methods can have their most useful impact. (*a*) They [illegible]

3. I am indebted to Dr. K. K. [illegible] tous phrase.

single day of five or six hours, and several weeks of marking examinations to a day or two. (*b*) At the same time, they can significantly increase the reliability and validity of the selection process.

Two types of tests are commonly used for modern selection methods. (*a*) Scholastic or academic aptitude tests, which are related to what used to be called "intelligence tests". But their purpose is more specific. They attempt to measure the degree of development of those abilities which are most basic for higher education : the ability to understand, use, and reason with words, and the ability to think in quantitative terms. (*b*) Achievement or attainment tests, which attempt to measure knowledge, understanding, thinking, problem solving, in specific academic fields. Using multiple choice questions, a test with 50 questions to be answered in 45 minutes will often cover more than two three-hour papers of the traditional type, in the same subject. But even in achievement testing, the trend is away from questions based on a specific curriculum. Rather, the most modern of these tests attempt to measure developed abilities to think, reason, understand in a particular academic discipline, rather than just knowledge and understanding of a specified body of facts. And it is because of this that they are increasingly successful in predicting *future* achievement—which, after all, is the crux of the selection problem.

Based on both foreign and Indian research experience, these things we know : (*a*) That modern educational tests (both aptitude and achievement) are better selection instruments than the traditional examination methods; (*b*) that when aptitude tests are combined with school marks (or rank in class), the combination produces better selections than either alone; (*c*) that on the average, objective-type examinations are approximately six times as efficient as the traditional type; (*d*) and that the validity of *any* selection instrument or method will vary from institution to institution, and even from year to year in the same institution.

To document these important statements fully would require a book; but within the space of a chapter they can atleast be illustrated, from Indian research and experience.

Modern educational tests can improve the selection of students for higher studies. Vellore Christian Medical College has perhaps had longer experience with this type of testing than any other institution of higher education in India. In the initial years, the shift to the new methods for selecting students resulted in a 26% reduction in the number of years lost (through detainments) per hundred students. The figures show that "with a given amount of facilities and finance, a little better than four more students per hundred are being given a medical education since these modern selection methods were substituted for the older ones."[4] Similarly, there was a 27% reduction in the number of papers failed per student. The improvement was primarily in the quality of II and III Division candidates admitted but even the number of Intermediate First Divisioners who later did poorly was reduced.

T. P. Lele and his colleagues administered a University Entrance Test

4. Carman, Naomi H., Paul, Joy C., Harper, A. Edwin, Jr., Das Gupta B., and Sangal, S. P. "A Note on the Validity of A Medical College Selection Programme." *Sankhya The Indian Journal of Statistics*, Series B, 1962, 223-244.

at Baroda. A year later the correlation[5] of these marks with First Year Science results was .68, with Arts it was 54, and with General Science it was .74. The last of these is near the level at which two different intelligence tests will correlate with each other, and thus indicates a very good level of prediction (and accuracy of selection) indeed.

Several institutions (Baroda, Mysore, Agra, Sagar) have developed teacher aptitude tests, which correlate with later results at around .50. The selection tests used for the Training Course of the Bengal Library Association predict later examination results with a coefficient of correlation of 62, while the selection tests for the Indian Statistical Institute's M. Stat course have correlated as high as 72 with later results. The Indian Institute of [illegible] Test of Quanti- [illegible] rks than High [illegible] ı, and their own Interview Ratings. I.I.M. Calcutta had similar results with a more extensive battery of selection tests.

Prediction of later marks (and hence selection) is improved when various measures are combined. Generally, the combination of both objective educational tests (aptitude and achievement) with previous academic record (or rank in class) does a much better job than either alone The Institute of Vocational Guidance and Selection (Government of Maharashtra) studied a medical aptitude test. The correlation was 49 with first year marks; but when Intermediate Division was combined with the selection test results, the correlation with first year marks was raised to 57 In 1955, the Indian Statistical Institute in Calcutta admitted only First Division M Sc.s in mathematics or First Division B.Sc s in statistics to its advanced course In 1956, when admissions were based on both aptitude tests and previous Divisions, one-third of those selected had been Second and even Third Divisioners How well did they do? Of the 1955 group, which was made up of First Divisioners only 46% did well on their first important examination, of the 1956 group, 74% did well. Thus the addition of educational tests (both aptitude and achievement) allowed the Institute to select Second and Third Divisioners who were of better quality than the First Divisioners taken on academic record alone. At the Vellore Christian Medical College, not only was the combination of aptitude tests with previous Division better than either alone, but the addition of a three-day interview and personality testing procedure raised the correlation from .55 to 63. Incidentally, this correlation was with the final results *five years later*, not just with first year exams; and it was with the rating, after five years of contact, of how good a doctor his or her teachers thought each student was going to be.[6]

5 The "coefficient of correlation" is used here as a measure of the relationship between selection scores and final marks. The detailed interpretation of this coefficient is a technical matter beyond the scope of this paper. (Readers not familiar with it may refer to any textbook on educational and psychological statistics) Suffice it to say that the coefficient varies from 0 (no relationship at all) to 1 00 (a perfect relationship)

6 It is probably impossible to measure how good a doctor each student actually becomes Brilliant student A is offered a foreign scholarship for post-graduate studies, but he refuses it because he wants to serve the poor in India's villages The scholarship is then offered to student B, who accepts, finally settles abroad, and becomes a World-famous surgeon, while A's name remains unknown beyond his district hospital Which is most "successful"?

Objective measures of achievement (knowledge, ability, thinking, etc.) are approximately 6 times as efficient as traditional exaimnations. This figure of "six times as efficient" is, of course, only a very rough approximation. The degree to which efficiency is improved depends on many complex factors, such as subject matter, type of questions, and level of education. Perhaps a range of three or four up to 10 or 12 might be more descriptive. But as an average, six seems as accurate as any.

The writer first heard this particular figure 18 years ago from Prof. P.C. Mahalanobis, India's world-famous statistician. Prof. Mahalanobis had experimented with objective examinations many years earlier, when he was teaching Physics at Presidency College in Calcutta, and had found them to be approximately six times as efficient as traditional examinations. The writer also heard an American expert state that it would take 18 to 24 hours of traditional essay-type English examinations to reach the reliability of a single three-hour objective examination in that subject—a ratio of about 6 or 8 to one. Many other studies have compared the two types, both in terms of increased reliability and validity, and also in terms of increased coverage. In a brilliant paper a professor of pathology in an American medical college, Dr. Robert A. Moore, translated an actual essay-type question into a series of objective questions. He showed in detail how everything covered by this single traditional-type medical college examination question in pathology—knowledge, recognition of differences, description of changes, understanding of mechanisms—can be covered in 17 objective-type questions. "If we assume that this one example is an average, this means that with 17 times five, or 85 objective questions, the same material can be covered as in a five-question essay examination. In fact, the usual objective examination of two- to three-hour duration contains 200 to 300 items which would correspond with 12 to 18 essay questions. Thus, the objective examination can cover a broader spectrum of knowledge than the essay examination in the same time period and, therefore, is the examination of choice when this is desired."[7] In India, similar translations of essay to objective questions have been done by Vidya Sagar Misra of Gauhati University, and others.

Several studies, including at least one done in India, have shown that even essay-writing ability—as measured by a series of essays written in college—can be predicted better with a half-hour objective test of "knowledge of English usage" than with an essay-writing examination of the same length. The Indian study, done in 1955 when English was still a medium of instruction, merely asked students to recognize errors in English. For example, in the following sentences, write in the brackets the number of the section in which an error occurs:

X. The box/which he maded/broke. NO ERROR ( )
1 2 3 4

Y. The man/went walking/in the woods. NO ERROR ( )
1 2 3 4

The answer to the first item is "2" while for the second, which is a correct sentence, it is "4". There were other types of questions, also, requiring the student to select the best from several alternative possible corrections.

So far, we have discussed efficiency basically in terms of better (more

7. Moore, Robert A., "Methods of Examining Students in Medicine". *Journal of Medical Education*, January, 1954.

public examinations fail because of the unreliability of the examinations, not because of actual lack of merit. Thus it is often the examination system, not the unlucky candidate, which has actually "failed". Objective-type tests can be used to reduce the amount of time taken in examining (which is what is done in selection testing). However, if we are willing to continue examinations for the same length of time as presently, then the use of objective-type questions could greatly reduce the number of candidates unfairly branded as "failures".

It should be added parenthetically that very few experts would scrap the present form of questions completely Rather, they would advise a mixed examination, containing both multiple-choice and improved traditional-type questions. Each type can then be used to assess the particular abilities for which it is most relevant, thus working towards a much more balanced whole.

Although our discussion is about the use of modern educational tests which are externally prepared, perhaps a digression on the use of these methods for teacher made tests in the classroom is not entirely irrelevant

The simplicity with which objective examinations can be marked makes them very useful for more frequent unit tests in the classroom (Once prepared, they can be used repeatedly. Students should be allowed to look over their mistakes, but not to keep the papers. They should be studying the course, not old examinations) More frequent testing leads to better study habits. It has also been shown to lead to better final exam results Students who have learned once for a unit test, a second time for a Terminal, and had a third review for a Final have a much better grasp of the course than those who have only crammed once.

There is a wide recognition of the need for closer student-teacher understanding. Yet any talk of reducing teacher-student ratios is probably unrealistic, given the pressure of rising population and rising educational aspirations. Objective tests do, however, provide at least some amelioration in this situation (*a*) When handed back for study, they provide each individual student with a detailed picture of what his errors in thinking and understanding are—a far greater degree of individual help than is ever possible for a bi [illegible] ") If the teacher (or the [illegible] is were missed by large [illegible] as to what the strengths and weaknesses of his own teaching have been, what needs further review, etc. Thus the objective test serves as an instrument of two-way communication in a far more efficient manner than is possible with the traditional examination.

The validity of an educational selection test or method will vary from

vary from year to year——in one case the range was from .75 to zero. Some of this variation may be the function of the particular group of students admitted in a particular year. However, it is at least possible that much of it is due more to the unreliability of college and university examinations than to any defect inherent in the selection instrument. In one case, an objective examination was used as the "test examination" in one paper in several high schools. Shortly thereafter, these students appeared for the Board examination in that paper. The correlations between the same objective examination and the *same* Board examination ranged from +.82 to—.25. The reliability of the objective examination was statistically determined to be quite adequate. In the Board examination, the answerbooks from different high schools probably went to different examiners.

The point of this section, of course, is that no final decision about any method of selecting students should be made on a single experiment. Repeated research is necessary—both on traditional selection methods, and on the use of improved educational tests—before there can be any final verdict. There are enough data buried in most Registrars' offices to show how valid traditional selection methods have or have not been. Statistical studies are needed of these data. It is against this background that we can asses the possible contribution of educational tests, to better selection of students.

PLACEMENT

Within certain limits, there is a great deal to be said for grouping students according to ability and level of previous training. In an English class, for example, putting beginners with advanced students can result in considerable waste. The faster students are held back, often bored, and certainly not able to develop to the fullest—while the pace may still be too fast for the weakest students who, not even reaching the first rung of the ladder, may end up learning virtually nothing. The same is true in other subjects. Objective achievement tests form a quick and efficient way of finding out the level of understanding a particular student has reached in the subject. Wilson College, in Bombay, uses an English Placement Test to select its students for an intensive English course. Isabella Thoburn College, Lucknow, has used tests in science subjects in this way for several years. A wider use of educational tests for placement is overdue.

MAINTENANCE OF STANDARDS

The external examination system in India is supposed to produce uniform standards—but in practice, we all know that it does not. Certain universities are known to be better than others, but there is really no direct way in which they can be compared. One problem is that, with the traditional examination system, statements about relative standards ultimately rest solely on human judgement. And human judgement is notoriously fallible. There is good reason to believe that even within a single examining body, the wide variation in pass percentage from year to year is more a reflection of the variability of examiners' judgements than of any actual variation in ability of the candidates examined.

Objective tests and examinations provide an obvious answer to this problem. Human judgement enters heavily into the preparation of the examination, but the marking and assessment are then completely objective. Thus the same examination could be administered in a large number of universities, and yet be marked with a completely uniform standard. What is more likely, however, is the use of standardized tests by teachers or department heads as a means of assessing their own work, and, if necessary, raising their teaching standards to meet a more general norm.

To maintain standards over a period of years in the same institution the same tests cannot, of course, be repeated. Students would learn the answers, and thus get progressively better results. However again statistics, that handmaiden of modern psychology and educational measurement, comes to our rescue. We have already mentioned that even used examinations should not be published—students should study the course, not old examination questions. Thus out of 200 questions in an examination, it is safe to repeat, say, 20 of them the next year. When we compound the low probability of a student having heard about these particular 20 questions, with the less than perfect probability that he has heard them exactly correctly and has heard the correct answer to each of them, we can see that the influence of such repetition on any student's mark is likely to be negligible. Statistical manipulation of the results of these 20 questions, however, make it possible to mark the new examination to almost exactly the same standard as the examination of the previous year. Over a period of years this norm can be maintained. In 1982 we can still be marking students according to the same norm as in 1970. With present traditional examination methods, this is impossible.

GUIDANCE

At the higher secondary level, educational tests, both of aptitude and (to a lesser extent) of achievement, are widely used in India to guide students in making correct educational and vocational choices At present, only examination marks are used to provide such guidance at college and university levels in India. Since the reliability of examination marks is often low, they provide only a highly fallible guide The provision of better testing instruments for guidance of students at the university level seems to be a field which is now ripe for development.

THE MISUSE OF EDUCATIONAL TESTS

[illegible]
are [illegible]
incre[illegible]
also—should be used as aids to judgements, never as final answers. They must be used along with other tools, measures, methods, and assessments, never alone or in isolation. But properly used, educational tests can greatly enhance human values in a democracy. They can help to uncover abilities which may otherwise escape notice because human judgement is influenced (unconsciously, often) by such irrelevant factors as sex, creed, or race. They can help to equalize educational opportunity. Their introduction into the selection process can often give a second chance to a student who

has done poorly in an examination because of illness, anxiety, poor verbal fluency, the unreliability of examiners, or other irrelevant factors.

Research is needed on *all* methods of selection—educational tests, interviews, traditional examination marks, etc.—and they should be used only in the light of such research findings, not on the basis of arbitrary assumptions as to their reliability and validity.

A PROPOSAL

The best tests are those which are written by subject-matter experts, with the guidance and editorial assistance of an expert in educational measurement. Any university, and even a small college, can set up an examinations office to promote better educational testing. However, the pooling of knowledge and facilities has many advantages, increasing the quality of the tests and examinations while at the same time reducing their per student cost.

What is needed is an Inter-University Cooperative Testing Service. Such an organization would be a voluntary association, serving within a single linguistic area. It would provide three types of services: (1) It would operate "secure" selection programmes, such as are now used by the Indian Institute of Management, Calcutta, the Vellore Christian Medical College, etc. By "secure" we mean that all testing materials remain confidential, and are the property of the IUCTS, so that they may be used again without leakage. The IUCTS would send to all candidates, ahead of time, a booklet describing the tests, giving sample questions, telling how to prepare. To keep the actual testing materials confidential, the IUCTS would set up testing centres, send out the materials, have them returned for marking and scaling. The results would then be sent to the colleges or institutions, which would be free to make use of them in any way that they wished in deciding on admissions. (2) The IUCTS would also develop and standardize other tests, which would be sold to any qualified user. While these obviously could not be used for selection (where any "leakage" invalidates a test), they would be very useful for guidance, placement, and even for informal "maintenance of standards" use. In the latter, a teacher of, say, psychology, would administer a nationally (or regionally) standardized test to his own class, to find out how his teaching compares with that of other universities.

Both of the above services are offered by such organizations abroad. For the third service, there is little precedent, as it is related to the peculiar situation in India where admissions must be carried out within only a week or two available between the time higher secondary results are published, and university opening dates. (3) The IUCTS would provide selection testing materials for local administration, scoring, and interpretation by the college or university buying the service. New tests would have to be provided each year, because even with the best efforts the tests would probably "leak" after use. Detailed instructions would have to be provided so that scoring and interpretation could be done by college and university teachers and administrators with no background in educational measurement. It seems probable that, as the growth of population and of educational aspirations begin to make selective admissions a necessity, it is this third service which would be most widely used.

Such a cooperative testing service can build on the experience we already

ive in India, as well as the experience abroad. Through it, the potential nefits of modern educational testing can be made available to every uni-rsity, college, and technical institution in India.

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Examination Design

J. E. JAYASURIYA

WHEN A STUDENT has been exposed to an educational programme, it becomes necessary to assess the extent to which he has acquired the knowledge and the understanding which the programme was designed to give. Educators throughout the ages have grappled with the problem of how best to make such assessments. Examinations in fact evolved in a somewhat different context, the beginnings being in China over 1,600 years ago when oral examinations were used in the competition for entry into the Chinese Imperial Service. Essentially they were elimination competitions consisting of a number of eliminating rounds designed to reduce the number of applicants to the number of available positions. It was incidental to this objective that degrees were awarded to those who survived certain eliminating rounds, but in that process examinations also became assessments of achievement.

Obviously, assessments have to be made on the basis of one or more overt responses elicited from the student by the examiner. The latter is in control of the stimuli, such as questions, which are used to elicit responses from the student. In other words, the designing of the examination is generally in the hands of the examiner, and it behoves him to use all the ingenuity at his command to design an examination that would make efficient assessments. In actual fact, there are practical limitations on the exercise of his ingenuity. The nature of the subject matter in a particular field of study may impose limitations. A more serious limitation, however, is that imposed by the sheer weight of numbers receiving education and needing assessment. Not only is the ancient method of oral examinations ruled out by the weight of numbers, even the written examination appears to be at stake in the future unless it can be assessed by mechanical means. Be that as it may, the design of examinations is an undertaking that requires a great deal of study and experimentation.

From the point of view of sampling the subject matter taught in a course, n examination consisting of only a small number of questions necessarily amples only a relatively restricted number of the topics dealt with in the ourse and leaves out all the other topics included in the course. To inrease the number of questions with a view to ensuring a comprehensive overage of the subject matter of the course would entail an inordinate ength of time for answering the questions, unless the questions can be ansvered briefly. In other words, if the answers are to consist of essays, the umber of questions has to be limited to five or six, thereby making a restricted sampling of the subject matter inevitable. It follows from these onsiderations that if a comprehensive coverage of the subject matter is to e aimed at in an examination with a manageable time limit, the number of questions has to be large and every question should be such that it can e answered without much expenditure of time.

Let us first consider the following typical designs for examinations

A. A small number of questions (*e g* 5) requiring essay type answers. Every question has to be answered and the candidate is given no choice.

B. A small number of questions (*e g.* 5) requiring essay type answers to be selected and answered out of a somewhat larger number of questions (*e g.* 10) set in the paper.

From the point of view of sampling the subject matter taught in a course, design A is weak in that it severely restricts the number of topics that can be examined. A candidate's performance is being judged by his knowledge of a handful of the topics that would have been dealt with in the course Design B certainly samples the subject matter of a course a little more effectively than design A but it is open to the weakness that unless all the questions set are of uniform difficulty a candidate's performance would depend to some extent on his choice of questions. Empirical research shows that if ten questions are set out of which five are to be answered, candidates made to answer on a later occasion the five questions different from what they answered on the first occasion earn widely different marks on the two occasions. In fact, many of them earn on their own selection of questions a lower total than what they earn when forced to answer the remaining questions on a later occasion This is clear evidence of the fact that the choice of questions determines in an important measure the marks earned by a candidate.

From the point of view of accurate assessment of the essay type answers written by candidates, both designs A and B are open to weaknesses Empirical research shows that two examiners would seldom agree about the mark to be assigned to an essay type answer. An answer which gains a high mark in the opinion of one examiner may earn a low mark in the opinion of a second examiner, if the two examiners were to assess the answer independently of each other. As a matter of fact, research has shown that when the same examiner is made to assess an answer on two different occasions the assessment on the second occasion being made without a knowledge of

examiner who assessed it and when. Boredom could, for example, affect assessments differentially, making some examiners more liberal and others

Such a combination of question types may serve to make the examination a fairer index of achievement than the exclusive use of any one type

Appendix

Examination Paper
in
PSYCHOLOGY

(Short questions only)

1. What are the limitations of introspection as a method of psychological study?
2. What is a control group experiment? Discuss one such experiment with which you are familiar.
3. What may be some of the consequences of premature toilet training?
4. According to Piaget, a child does not develop reversibility of thought until the age of 7 or 8. Illustrate what is meant by reversibility of thought
5. Distinguish between reinforcement in classical conditioning and in operant conditioning
6. Explain what is meant by stimulus generalisation
7. What does Maslow mean by the need for self-actualisation?
8. What is meant by the functional autonomy of motives?
9. In Freud's psychoanalytic theory, what important function does the ego serve?
10. Contrast concept formation with memorisation
11. What advantages does programmed instruction have over ordinary class teaching?
12. How does a linear programme differ from a branching programme?
13. Why is punishment regarded as an unsatisfactory disciplinary technique?
14. Enumerate the common mental mechanisms and give a brief account of one of them
15. Enumerate the more important factors that have been shown to be associated with backwardness.

Designing and Planning of Question Papers

K. K. ROHATGI—MUKHERJEE

DESIGNING OF A QUESTION paper for a given examination is intimately related with the objectives of education and also the purpose for which the examination is to be used eventually. The examinations may be used for (1) grading of students, (2) for promotion to the next class, (3) as diagnostic tool to discover areas of strength and weaknesses in the students, (4) to judge the effectiveness of the teaching methods and to obtain a feed-back, (5) to select students for scholarship and talent, (6) for placement in jobs, etc., (7) for subtly changing the course in the event of development of new concepts. In the system of education (teaching, learning and evaluation) prevailing in our country, a single type of examination is expected to serve all these purposes, except no. (5) where special schemes under the National Talent Search Programme have been initiated. This is the biggest fallacy of our education system.

The University education is meant to develop the overall personality and bring out hidden talent of a student so that later on he/she becomes a responsible citizen of the country. Therefore any course which is planned should, not only emphasize the content, but also the qualities that are desired to be developed. But in our country the human aspect or behaviour pattern of the student is seldom considered as something to be reckoned with. Teaching consists mainly in imparting of information and examination questions demand nothing but recall of these information.

The first step in designing a question paper should be to write out the specification in the form of two way grid consisting of (1) the subject matter of the course and (2) the abilities, in terms of student behaviour, that the course is designed to develop. The taxanomy of educational objectives have been defined by Dr. Benjamin Bloom and are well known. In general, knowledge, comprehension and application aspect receives greater emphasis in our teaching programme. The three still higher categories-analysis,

ynthesis and evaluation normally receive much less weightage. Of course he weightage for any of these specifics will depend on the level of teaching programme. The first three categories of objectives lend themselves to objective type questions. Of different kinds of objective type questions, the multiple choice type has been found to be most suitable for a valid and reliable evaluation.

Framing of [illegible] able time and th[illegible] discrimination a[illegible] can be designed to evaluate any given educational objectives or course content. Above all, because of the short time required to answer such [illegible]

tages in the sense that students, do not get the practice of writing a connected piece of prose and to show any independence of thought. They may also encourage guess work They are fixed response type and do not match with modern trend in teaching which is to give greater freedom of thinking and response to the students.

For assessing the higher abilities such, as analysis, synthesis and evaluation, essay type of questions may be considered to be more suitable. But subjectivity in marking them is a disadvantage when large number of students are to be examined. Although this drawback is partially compensated by appointing 3 or 4 examiners, it does not permit good coverage of the course. Many options are allowed to condense the course within the time limit of examination. No valid judgement can be made as regards students abilities Since all questions cannot be equivalent in all respects, one student may get a first class for memory and another for comprehension. There is no way to include this fact in the examination results.

A greater flexibility in examination papers can be achieved by using open-ended structured questions. These type of questions can be immediately introduced in the prevailing system of examinations in our country The teachers can get the practice of writing such questions by using them in class tests. By doing so, they can discover the strength and weaknesses of their own teaching method also. The test should parallel the technique of teaching. [illegible] participation in the [illegible] n the examination tech[illegible] type of test paper.

With proper marking scheme, structured questions can be very effective as a diagnostic tool. They also can be marked objectively. If presented in a programmed sequence, they can judge correlated knowledge and understanding. The students do not have to write a detailed account but they must answer to the point, in few short sentences. They know exactly what is required of them thus eliminating vagueness and ambiguity inherent in essay type questions.

A complete question paper in any given subject should include all the three types of questions, (1) objective or fixed response type, (2) structure or short answer type, (3) essay or free response type. The weightage given to

any type will depend on the level of teaching as well as the nature of the subject *i.e.*, whether chemistry or mathematics or political science or literature. For a science subject like chemistry following weightage on the forms of test is suggested. The weightage may shift towards essay type at higher classes.

Serial Number	Forms of questions	Types of response	Weightage for 3 yrs. degree cours	
			First year	Final Year
1	Objective	Fixed	30	25
2.	Structured	Open-ended short	60	50
3.	Essay	Free	10	25

It should be pointed out that for this kind of approach to be successful in our pattern of examination system where external examination is unavoidable at the college level for affiliating universities, the prospectus of the university should not only list the topics to be taught in the classes but should also indicate the educational objectives of the course. A test specification should be sent out to the external examiners. Then only real reform in teaching methods can be implemented because examination questions have great influence in curriculum development and improvement of teaching.

The art of writing multiple choice questions is acquired only by practice. Therefore teacher training programme in the form of short course in test construction and evaluation methods must be implemented. A model for such a course in chemistry is given below. This model was developed at the Summer Institute on "Test construction and evaluation methods in Chemistry" held at Jadavpur university under the sponsorship of National Council for Science Education.

A MODEL FOR ONE-WEEK SHORT COURSE IN TEST CONSTRUCTION AND EVALUATION METHODS:

1. Location : University (Unitary university for university teachers, affiliating university for college teachers).
2. Objective : To construct a standard general Chemistry Test.
3. Number of participants : 40 to 50.
4. Pre-Institute preparation : Send out a model syllabus of a General Chemistry Course and ask them to itemise themes and concepts which the teachers think that students should know. They should also be asked to think what abilities they would like their students to develop. What, in their opinion, are the aims and objectives of chemical education. Six teachers of organising university to be trained as group leaders.

5. Institute Programme :

1st day—(1) Lecture on (a) Educational Objectives, (b) Types of Tests.

(2) Participants take a 2 hours standardised General Chemistry Test (may be prepared by Amer. Chem. Society). This places them in the position of the students which will be helpful in future item writing. The tests are scored immediately and results retained for discussion of evaluation procedures. (This General Chemistry Test will be below the level of College teachers and distribution curve may not be satisfactory).

2nd day :—Lecture on Item writing and General format of multiple choice tests. Participants divided into groups for review of the items in the General Chemistry Test. One tutor to act as group leader. Home assignment—Writing items to specified items.

3rd day :—Two test items submitted by each participant. Group reviewing of items to specified item. Setting up a specification for general chemistry test. [illegible] Home assignment—writ [illegible] (1) key, (2) educational o [illegible] Four test items submitted by each participant.

4th day :—Review of items in Groups. Construction of a two-way grid for General Chemistry Test. Content analysis to check deficient areas. Home assignment—items for deficient areas.

5th day :—Lecture on evaluation procedures, and item analysis. Distribution curves and setting of norms demonstrated with the help of data received on the first day test by the participants. Review of items submitted for deficient areas in the General Chemistry Test Home assignment—Rechecking of *Key*.

6th day :—Test (about 80-100 items) ready for pre-testing on a mixed group of college students who have completed their 1st year and 2nd year Local teachers administer the tests in their own institutions. (2 hours) Tests plus the answer sheets brought back. Answer sheets scored, standard deviation and distribution curve set up with the help of the whole class For item analysis—the class divided into two groups to work on (1) the high ability group and (2) the low ability group Groups may be further sub-divided; each sub-group to analyse say 20 items.

[illegible] power [illegible] e class [illegible] permits some discussion on conversion of essay type of questions into structured questions may be taken up. The assessment of practical work is also an important topic.

Institute to work from 8 30 a.m. to 5 p.m. with suitable breaks for coffee, lunch, etc. Suitable library facilities for working in the evenings.

SOME OF THE TECHNICAL TERMS USED IN OBJECTIVE TESTING —

1 *Item*: This term is synonymous with conventional questions and its use is preferred on the ground that many so called "questions" in objective tests are not direct questions. They may be completion of statements etc.

2. *Stem* : The part of the item in which information is given and the question is framed.
3. *Responses* : The list of answers from which candidates are required to choose the correct one. These may be numbered serially or lettered in alphabetical order.
4. *Key* : The number or letter denoting the correct response.
5. *Distractors* : Sometimes used as synonymous with responses, but it means all the possible response except the correct one.
6. *Difficulty level* : The percentage of candidates who wrongly answered a particular item.
7. *Discriminating power*: The way in which a particular item discriminates between candidates who do well or badly in the test as a whole.

Designing and Planning of Question Papers

M. KUTUMBA RAO

A QUESTION PAPER serves as an instrument of measurement of a student's knowledge of a particular subject It has a direct and decisive bearing on his performance and achievement. Hence it should be thoughtfully designed and prepared.

At present, universities in our country adopt varying procedures to obtain question papers from the paper-setters. Whatever be the differences in the procedures followed and the merits and demerits of each of these, the practice of appointing paper-setters for each year's examinations is an annual feature in all universities Every year boards of studies submit panels of names for consideration by the syndicate for appointment as paper-setters. Generally senior teachers only (Professors, Readers and Principals) are appointed as paper-setters and some of them have many assignments to fulfil. Sometimes, they accept the offer, sometimes they decline it When one declines an offer, another person has to be approached Until all the persons appointed as paper-setters accept the offers, it will not be possible [illegible] All this involves time [illegible] s desirable to avail the services of senior teachers for this work, it does not always happen that we get the best from them. For one reason or another they sometimes fail to bestow sufficient time and care in setting question papers With the best of intentions, sometimes they err. They set questions in haste, they set questions without aquainting themselves with the syllabus prescribed and standard expected. Sometimes they set questions on text not prescribed at all or on texts prescribed in another university.

A majority of universities provide for the holding of a meeting of the Board of paper-setters to scrutinise the question papers set The purpose of holding such a meeting is to see that the question papers are of the right kind and within the scope of the syllabus and conform to the standard of

the examination. Mistakes like overlapping of questions, repetition of questions set for the previous examinations, ambiguities in the questions set and verbal errors are expected to be eliminated by this board. They are also expected to see that the paper set conforms to the pattern given regarding grouping of questions, choice to be given and distribution of marks to each question.

Despite this provision a number of defective question papers crop up each year. Numerous complaints against such question papers are received at the end of the examinations. Often it is found that these complaints are not without any basis. On some occasions the mistakes are so grave as to compel the students to boycott the examinations and resort to acts of violence.

After all the prolonged correspondence and considerable expenditure (which may be to the tune of one to two lakhs of rupees per annum) if we get every year a few question papers that throw the entire scheme of education into jeopardy, is it not right that we should think of an alternative method of getting papers set? Is it not time to call for a slight change in the procedure followed and ensure for absolute correctness in the matter of question paper setting?

I would like to suggest the setting of a "question-paper bank" for each subject.[1] Before elaborating on the plan, I would like to make it clear that this is not a big 'reform' in examination system. It is just a different and an improved method of organising the whole work connected with paper-setting with a view mainly to eliminate all categories of error within the papers set.

The question paper bank may be defined as a kind of reservoir of a number of sets of questions on each subject in which an examination is to be held and from which a set for any particular examination could be picked at random and at a moment's notice and sent to the press. The creation of this reservoir is an important collaborative work and it has to be carried out in different stages and by different persons. The details of it are as follows :

STAGE 1

The cycle of work may be said to begin with a request to each Board of Studies that prescribes the syllabus in a subject to suggest certain guide-lines for setting questions in that subject. That is, along with the syllabus, the Board has to indicate (*i*) the pattern of the question paper, (*ii*) the distribution of topics over the question paper, (*iii*) the type of questions to be asked, etc. and (*iv*) even to prepare a model paper. (In many cases, the syllabus for the subject might have been already prescribed. Then, the Board will have to suggest only the 'guide-lines'.)

1. In "A note on the possibility of continuous evaluation." Dr. H. J. Taylor suggested that a cell should be created in each university to be entrusted with the work of conducting examinations almost throughout the year, taking the examinees in batches. *In this context he also suggested that the conventional question paper should be* abandoned and in its place a central 'question storage bank be created. The implementation of his idea, as he propounds it, is not practicable with the educational set up that we have.

STAGE 2

Besides, the Boards of Studies will be asked to suggest suitable persons for preparing questions for each paper. These candidates shall be internal senior teachers only who are actually connected with the teaching of the subject concerned. From among the names suggested by the Boards of Studies, the Syndicate shall select some 12 or 15 for each subject and entrust [illegible]

[illegible]

they are expected to give a list of a variety of good questions in sufficiently large number (say around 250 for each paper) to the officer concerned Appended to each of the questions suggested by them, there shall be a gist of its answer too, which will be consulted at the time of valuing the answers.

STAGE 3

The screening of all these questions by an expert committee consisting of at least three internal specialists in the subject marks the third stage in the work. The committee will finalise the questions (with modifications and additions wherever necessary) The questions thus finalised will constitute the 'question paper bank'

STAGE 4

Another committee (selection committee) consisting of not more than three experts (all of them external) shall be constituted and entrusted with the responsibility of making four (for two years) question papers in the case of language subjects and six sets (for three years) of question papers in the case of other subjects in accordance with the guidelines for paper-setting given by the Boards of Studies. The committee should be asked to select questions from the bank only. They should not mention the year (or month) of the examination in the question papers compiled by them. They should place each paper in a cover specially designed for the purpose (the cover bears the Code number and title of the question paper) and hand it over to the officer concerned, after sealing it.

An interesting feature of this plan that I am suggesting is that there is certain amount of "openness" or "knowability" in the matter in all the earlier stages. It is only from the stage when the selection committee comes to attend to the business of preparing the question papers and sealing them, do matters become really confidential. And from then on there is practically [illegible] the Controller of Exami- [illegible] humble helper, as will [illegible]

STAGE 5

The officer concerned will pick up one sealed cover (out of the four or six sealed covers handed over by the selection committee) and send it without opening it to the press for printing. If a thousand question papers in differ-

ent subjects for different examinations for a year are to be printed, th
press will receive a thousand sealed covers, each sealed cover containi
just one question paper.

STAGE 6

The press will open the sealed cover and print the required number o
copies of each question paper. The press should be asked to pack the
into sealed packets of various denominations and send them to the offic
concerned. For example, if ten thousand copies of a question paper a
to be printed, the press may be requested to pack them into small packe
as follows :

70 sealed packets containing 100 copies each,

40 sealed packets containing 50 copies each,

40 sealed packets containing 25 copies each.

If 675 copies are to be despatched to any examination centre, six packe
containing 100 copies each, one packet containing 50 copies and anoth
containing 25 may be despatched in a sealed cover to the centre. The seale
packets need not be opened at the university at all. Under this system pe
fect secrecy of the question papers can be ensured.

ADVANTAGES

The benefits derived in setting of a question paper bank are as follows

(1) There cannot be any complaint against the questions set for a examination because all those are chosen from the questio paper bank.

(2) The teacher who actually teaches the subject and is acquainte thoroughly with the problems of it will have a big say in the matte of setting the questions to be asked, once this plan is accepted. I the existing system the teacher is not consulted on this issue Often the questions set surprise and even shock him as they ar difficult to answer for the students. With the scheme suggested this will not just happen. The teacher as well as the studen will have nothing to complain of.

(3) The above system ensures secrecy. For as we have noticed above even the Selection Committee does not know which of the four o six papers is going to be used for the particular examination And the officer in charge is not aware of the contents in the packets.

(4) The system under this 'question-paper bank' will work satisfac torily under all kinds of systems of examination. It will work well with the present mode of holding examinations, it will work equally well when the objective tests are introduced.

(5) A subsidiary benefit of the scheme is the increased efficiency and reduced cost in organising the work connected with paper setting for the office.

This is a simple system that I have prepared and I hope that put to test it will prove to be a success. In drawing it I have taken care to see that it is not very sophisticated. In my view it is easy, workable and beneficia to all concerned.

Question Setting and Moderation

A. K. GAYEN

THE EDUCATION COMMISSION (India), 1964-66, rightly observed that most of the weaknesses in the present system of examinations are due to defects in the questions and the question papers. The paper setters are often appointed on the basis of seniority, subject competence and experience in teaching. Very few of them possess the necessary knowledge of construction of valid and reliable tests. No improvement is possible unless the technical competence of the paper-setters is raised through an intensive training programme and unless also the question papers are oriented to testing not only acquisition of knowledge but also problem-solving abilities of the candidates.

In an examination, internal or external, the question items must have [illegible] didates in order [illegible] or inferior abi- [illegible] ay not be very high or very low scores on the items. They must have good reliability, so that the answers to the question items may reflect the ability of the candidates in a consistent way. They must be reasonably valid so that they may measure the true ability of the candidates in the subjects concerned.

If on a question-item, all candidates secure full or equal marks or fail to score or there is no attempt at all, then that question-item does not appear to have any value from the examination point of view, for it does not help ranking. If the language in which a question is framed is vague and ambiguous, admitting of various interpretations both by the examinees and by the examiners, then that question-item is of very little value from the examination point of view, because it introduces lack of uniformity in the assessment of answer-scripts and thereby vitiates the reliability of the examination. If a question-item is such that it requires only acquisition of information on the part of the candidates rather than real understanding of the subject and

development of thinking, then the item may not carry any value, as it does not measure the true abilities of candidates in a subject.

The principles of paper-setting in an examination and the functions of the different types of question items should be properly understood. Essay-type questions test candidates' power of expressing coherently a train of logical reasoning, their ability to choose the length of the answer, and their power of describing the kind of facts involved. Achievement tests with essay-type questions thus put a high premium on the power of expression. But in times of pressure or stress, some pupils frequently fail to do themselves justice and fail even to realise what is required of them. A little 'prompting' may make a difference in such cases, and objective tests may provide this prompting. Answer of one or two words can test knowledge of facts, and answers of a line or two of writing can test power of generalisation and thought. Similarly, supplying missing words, selecting appropriate terms, or deleting the incorrect ones of suggested alternatives, can test application of knowledge and power of reasoning.

We have also to devise other evaluation methods, such as observational techniques, oral tests and practical examinations, and to make them valid and reliable. In an essay type examination one cannot set more than six or eight questions in a paper of three hours' duration, and it is therefore difficult to ensure that the syllabus is covered adequately. It seems, to make a better form of examination, we should combine objective and essay type questions. The objective type questions alone cannot form a complete paper for an examination. The essay-type questions must be provided for answers demanding description of practical procedure, application of theories, working of problems, and the formulation of explanation and comparison.

As education today is examination-oriented, a paper-setter has a very important role to play. But he has his limitations, for his work, however perfect it may be, is bound to be circumscribed by the different standards of teaching in different institutions, by the different levels of ability in the teaching personnel, and by the calibre of students who take the examinations. He must set the questions from within the syllabus, but the trouble is that the syllabuses so prepared by the universities are very often if not always very cryptic, and not at all descriptive. This is the root of many evils. First, text book writers write books in accordance with the syllabus in their own light. Naturally there are differences in the treatment of topics by the writers. One college follows one book, and another college another. Nobody knows what book is followed by the paper-setter when setting questions. It is evident that students of different colleges do not or cannot deal with the questions in the same way. This disturbs the uniformity of performances. There is yet another problem of paper-setting. If stock questions are repeated every year it encourages cramming; guess work pays good dividend, and therefore true merits can never be judged. If a paper-setter can apply his ingenuity and set new types of questions then that would require sufficient notice to the teachers and the students.

Technically speaking, an ideal paper-setting requires that the paper-setter must have at his disposal a pool of valid and reliable questions (already prepared by some research or evaluation units) and must have the training to suitably utilise the same. Also a detailed and descriptive syllabus is a must in this matter. The teachers and the students, the paper setters and the examiners, all must know how well and how much of a subject the students

are expected to know. It is only then that teaching, learning and testing would be meaningful and fruitful. There should be gradual introduction of short-answer and objective-type questions The paper-setter should split the allotted round mark on a question item into as many parts as the number of aspects of the item.

The relationship of the question paper with the prescribed syllabus is a very important aspect of an examination. The syllabus, as we know it, describes the topics or rather different areas of the subject It is the basis on which the teacher teaches in the class-room, the student prepares himself for the examination and the paper-setters set questions to test the students' achievements. As has already been noted a question item is not valid if it refers to a topic which is not included in the prescribed syllabus A good syllabus should not be mere catalogue of topics, it should give a concrete shape to the teaching objectives of bringing about desirable changes in the student behaviour through the learning process. The syllabus of a subject should clearly state the aims and objectives of teaching that subject and list the concepts which are required to be developed. The real purpose of an examination is to see how far teaching objectives have been realised An examination defeats its own purpose if it is conducted through questions which do not relate closely to the teaching objectives and the concepts of the syllabus.

How to formulate the teaching objectives and when and by whom? One view is that framers of the syllabus should co-operate with subject-specialists and teachers of class-rooms and research workers in the field of the subject concerned and formulate the teaching objectives It is then and then alone that it would be possible to frame a well-defined syllabus Naturally, teachers in class-rooms will be guided by the teaching objectives and they will test their pupils from time to time to see whether these objectives are being achieved and the necessary concepts developed The paper-setter of the final external examination, while setting questions should have the aim of covering the concepts and the objectives involved in the subject So he would set questions which should go to measure the effect of teaching in the realisation of the objectives. Lastly, the work of assessment would be left to the examiners, who would record the achievements of students in terms of the objectives involved

There is a second view according to which the paper-setter has a very important role to play. He is in a position to set the ball rolling and to tone up the entire educational system. He may take the syllabus as it is, and by analysing it determines the teaching objectives which the different parts of the course may involve. By setting questions, each of which goes to measure one or more objectives he may help a great deal the teachers, the students, the examiners and the future framers of the syllabus. He should assess whether a test item would function in the expected way, that is, how far the teaching objectives have been taken into consideration in the item and with what weightage. By post-mortem analysis wherever possible he should determine the cause of malfunction of an item and statistical clues should be reinforced for the purpose by familiarity with the thinking and the language habits of the students. In the light of such findings he may improve the question paper and recommend measures for improvement of the syllabus.

There should be a body of paper-setters on a subject, and they should

be helped by a study unit. This unit should compare and analyse the sy bus and the text books of several years of several boards and universities a particular subject or subjects, collect material from research papers a gather views of subject specialists. Thus they may evolve teaching obj ives and the concepts involved in the subject concerned. Mere collect of a pool of question-items will not be enough for the purpose, unless th items are classified from the view-point of teaching objectives; it is only wh teaching objectives are achieved that we may expect improvement in behaviour of the learners.

The quality of question-items of a paper may be estimated with the h of an analysis chart. In this chart, every question-item may be sho against one or more objectives and the weightage, that is the mark allot to each of the objectives, may be ascertained so that the total weight of the objectives is equal to the total marks allotted to all the questions the paper. From this chart it may be easy to detect whether one or m objectives have been left out altogether, whether too much weight has be given to a few of the objectives only, and whether weightage has been dist buted according to the relative importance of the objectives involved. A ther such analysis chart may then be prepared in respect of coverage of pics in the syllabus and a comparative study of the syllabus and the questi paper from the view point of the objectives may be made to formulate use suggestions for improvement in the system of education and examinatio

Internal choice, that is, offering alternative questions in a paper has bo its good and bad effects. when it is not possible to cover the entire subj area in a three-hour paper, alternatives are a necessary evil. By this, candidate may select a group of questions which he has prepared and which he has sufficient interest. At the same time, too many alternativ help un-intelligent cramming and encourage the students to make gues work and depend on suggestions. As the object of public examination measurement of knowledge and not discovery of ignorance (which essential for teachers in a class room), alternative questions are perha unavoidable. If alternative questions have to be abolished the syllabus have to be curtailed.

The alternative questions which are very often set appear to be som what responsible for disturbing reliability. It is said that the setting of alte native questions enables the paper-setters to cover a greater part of the su ject area. When 'the general ability to write correctly' is the thing to measured and when the fact or facts involved are not important for conside ation, the alternative questions are found to be helpful. For instance, of number of topics, when candidates are asked to write an essay on on one, whatever question item a candidate may choose, his ability to wri will be measured from his composition. All these are arguments in favo of setting alternative questions.

But stronger points may be put up against setting of alternative que tions: (*i*) If this topic or that topic is not important for measuring writi ability, alternative questions are superfluous. (*ii*) The argument that great opportunity is given to candidates in choosing his subject does not ho good because through bad judgement a candidate may not hit upon the be choice, that is, the topic on which he could write best. (*iii*) Increase of t number of alternatives, when the number of questions to be chosen is sma would encourage cramming as the student memorising a selected number

questions would be surer to get his choice. (*iv*) If the candidate is to choose his own topic from among many given by the paper setters, it may be that he may present something prepared beforehand when he could write nothing at all on any other topic which he had not chosen. (*v*) It is very difficult to discriminate between students who can answer just the required number of alternatives and who are capable of answering many more. Considering all points of view it may be said that alternative questions should perhaps be avoided as far as practicable and all candidates should be allowed to run the same race by answering the same questions which must refer to a definite and specified information or idea.

Possible formulation of solution to questions in an examination in order to help the examiners in assessing students' performances is definitely a desirable m[illegible]
left alone [illegible]
ed teachers. [illegible]
assessment of objective type of questions is the other extreme. Combinations of essay type questions and objective type questions in the same paper has been recommended by various bodies and is certainly worth experimenting upon.

In the examiners' meetings, the model answers to all the question-items of the paper, prepared beforehand by the paper-setters, head-examiners and moderators, should be discussed thread bare, and detailed definite directions should be given to the examiner. In these directions how different aspects of a [illegible]
be clearly s[illegible]
is humanly [illegible]
not left undone. There should be minimum scope for an examiner to exercise his or her discretion in the assessment of student performance on any of the question-items of a paper. The proper use of model-answers should form a sound basis of ranking in the examination

In a large scale examination, examiners naturally large in number, must [illegible] uctions [illegible] assess- [illegible] possible.
At present, the examiners examine the scripts at home and submit them to the head examiners, who generally re-examine about five per cent of the scripts to see that a common standard of assessment has been maintained. But this appears to be hardly sufficient for bringing about uniformity of assessment, particularly when the number of scripts each examiner examines is also large. A suggestion in this connection is worth experimenting upon. Arrange-[illegible]

differences of views regarding assessments of answers resolved then and there. Some may consider this suggestion impracticable and may propose examina-[illegible]
a [illegible]
rather than returning home after they have read a sample, which is the practice of some universities'.

Majority of teachers of schools are not conversant with the technique of assessment in public examinations, because they are not appointed as exa-

miners. Hence performances of students taught by such teachers are not a true index of their abilities. Many examiners again have no clear idea of the method of teaching in class-rooms, because the examiners appointed by the Boards or Universities are not necessarily teachers of those whose scripts they examine. Cryptic instructions to examiners are sometimes responsible for widely different assessments of the same type of answers. Also the question of homogeneity of students is particularly important when a large scale public examination is conducted mainly through essay type questions. The candidates should receive the same kind of instruction from the same type of teachers.

Moderators should be looked upon as super-paper-setters whose business should be to examine thoroughly whether validity, reliability of the quesions have been secured, or whether the questions have been set strictly within the prescribed syllabus. All the qualities necessary for a good paper-setter should be in the moderators in an extraordinary degree. It is often found that nothing is probably done in the name of moderation. Moderation of question papers which is done in any Board or University is very often a formal matter. Moderations seldom interfere with paper setting work and when they do, they either make the paper more difficult or more easy. Neither of the two goes a great way to improve the system of examinations from the view point of education.

The examiners, may greatly influence the reliability of a public examination. It is very essential that they possess certain specific qualifications. An examiner should be conversant with the technique of assessment. He must be thoroughly acquainted with the course contents of the subject with which he is concerned. He should have a first-hand knowledge of the method of instructions given to the students and also of the students who are candidates for the examination. In short, experienced teachers of a subject should be appointed examiners of that subject.

It may be observed that examinership usually is looked upon by the Boards or Universities as a non-technical business; but unfortunately it is not at all so. An examiner or a board of examiners in a subject should be given a thorough formal training and they must be assisted by the paper-setters and the moderators, who would help them with a solution or model answers, and in awarding of marks on different aspects of the examination questions. The idea that any teacher however inexperienced he may be is fit for examinership should be given up altogether.

The best practice would be to entrust the entire responsibility of setting of question-papers and their moderation as well as the valuation of answer-books to persons who impart instruction. The local teacher cannot be ignored altogether. It may be further noted that while the most capable external expert, even with the best of his intentions, may fail to draw the question paper suitable to a locality, an internal examiner is the real judge of the achievement of his own students. Often the question papers, if entirely drawn by outside experts are found to be either stiff or are out of the way. It is desirable to appoint a board of examiners for each examination, where to start with half the examiners should be internal teachers. The final settlement of the question papers can be either done in a joint meeting or through correspondence. While distributing the job of valuation of answer-scripts, care should be taken that no one examiner has more than 250 scripts to assess.

Every university has its own procedures for the appointment of paper-

setters and moderators of question-papers. In some of the universities, all the paper-setters are external experts who moderate the question papers as well. In others, setting of question-papers and their moderation are shared equally by internal as well as external examiners In some of the universities, the question-papers are moderated by a board of internal experts only. In many statistical studies on examination results it has been found that average marks on the internal and the external assessments differ significantly in all subjects of the examination

The present system of making appointments of examiners needs to be reviewed. According to the present system, a panel of examiners is prepared by the Boards of Studies There is a provision that the committees constituted make recommendations regarding the appointment of examiners from the panel to the Academic Council and then to the Executive Council. The panels as well as the recommendations of the committees go to the Academic Council or Senate. It is obvious that in these circumstances it is difficult to maintain secrecy about the appointment of examiners. In certain universities, the appointments are made directly by the Vice-Chancellor himself on the basis of the recommendations of the relevant committees. This also may need consideration in any plan for examination reform.

A written test, even a series of written tests, is not sufficient to bring out the capacity of a candidate to the fullest extent. It is now a common fact that most of the students rely on either suggested or stock questions, and they have formed a habit of neglecting the text books or going through the entire or even a major part of the course content of a subject. These evil practices may be mitigated through the device of a practical examination and a viva voce test. While removing many of the drawbacks of the examination consisting of written papers only, the practical and the viva test will also help the students in two ways. They will be required to go through the text books in order to prepare themselves for the practical and the oral examination. This will increase his probability of passing the examination because unlike a written test where five or six specific questions have to be answered for a pass, the students will have greater scope in a practical or oral examination. The other good point in a viva voce test is that there is no scope at all, for obvious reasons, for taking recourse to unfair means at the examination

students in humanities will be larger than those in science and it may be more difficult to arrange for viva, still it should not be considered as insuperable. We can at least make a beginning by introducing viva in the examinations where the number of candidates is not very large for instance in Honours degree examinations. In this way the best students of the university can, in the first instance, be brought under the new system of examination, and gradually we can introduce viva voce test in other examinations also The number of persons and a mount of time involved to hold these oral tests are of course a thing to ponder over. The best suggestion would be to havethe viva voce and the practical experiments in science subjects in the internal tests. It is well known that in higher examinations, at the Master and the Doctorate degree levels viva voce tests always play a very important role

The internal assessment system, as it functions with us, is based on a complete trust in the teacher, with built-in safeguard. The teacher taking

a particular course administers all the tests, sets all the papers, supervises al the examinations and does all the grading. He is both instructor and th assessor. As a result, the assessment at all stages is intimate without bein unfair or loaded. It is related, as it were, to the totality of the students personality. The process of assessment of a script does not envisage a disso ciation between the script and the personality of the examinee. The teache is, for all practical purposes, the final judge. A living link is establishe between the teacher and the student, who participate in the process of assess ment in a way impossible in the external examination system. There is no un evenness in assessmnet as the scripts for a particular course are all assesse by the same person. The question whether or not the teacher in India ca be trusted to this extent has been constant matter of debate. Our experienc is that the teacher can be so trusted. The same experience has been repeate in Agricultural Universities and in the Indian Institutes of Technology.

It may be noted that unless the universities are coordinated in method of examination and assessment and paper-setting, appointment of externa examiners is an indirect aspersion on the teachers of the university con cerned and has the chance of doing injustice to the candidates. Plainly speaking, the very question of appointment of external examiners as is now done in examining theses for doctoral degrees should not be introduced in under-graduate or post-graduate examinations of a university. The question of appointment of external examiners may arise when the authorities suspec the teachers or when a bias is detected in the matter of assessment of answer scripts.

Finally, it may be observed that apart from the improvement of ques- tions and question-papers, many other procedures of examinations need to be made more scientific. The marks of different subjects are now added without being standardized. The determination of cut-off points, the award of grace marks and other similar methods are also not based on any sound principles. All these factors tend to make the examination scores less and less reliable. It is essential that scientific scoring procedures should be de- vised so that there may be optimum reliability in the assessment of the candi- dates' performances. The Indian Education Commission, 1964-66 recom- mended in this connection that the University Grants Commission should set up an Examination Research Unit for Higher Education which should work in collaboration with corresponding psychometric units of the univer- sities. This should become the starting point of an effective programme of examination reform.

Moderation: Views and Suggestions

N. C. AGRAWAL

MODERATION : NATURE OF WORK AND LIMITATIONS

IN THE UNIVERSITIES of Bihar the Examination Board appoints a Board of Moderators in every subject which usually consists of four members, generally three of which are internal members and one an external one. On the recommendations of the Moderation Boards the Examination Board appoints the paper-setters, the head-examiners and examiners in various subjects. Such Boards also moderate questions and the results. Under the present arrangement the examinees not only come to know the names of the examiners, but often we come across the report of leakages of questions The most surprising thing is that the questions which leak out find their way in Guess Papers published by big publishers. It has also been reported that members of the moderation boards secretly pass on the set questions on certain fat payment from the publishers. Even if we take a position that these reports are incorrect, I hold the view that the moderation of questions is of no great practical utility on which universities spend lacs of rupees. The earlier this system is given a good-bye, the better it is for all concerned

Many universities in India have abolished the practice of question moderation without any ill-effect or difficulty. The example of Rajasthan University outside Bihar and Ranchi university in Bihar can be cited. Teachers of integrity be appointed paper-setters and head-examiners so as to avoid mistakes in the question papers. In case there is any dearth of local talents, teachers outside the university can very well be appointed paper-setters. Even the Board of Moderators can very well set the papers.

Thus, the earlier the moderation of question is done away with, which is an unnecessary appendage to the Board, the better it is for all concerned and it not only saves the money and the time of the universities and enable

them to publish results earlier, it will help them restore the dying faith in the impartiality of the examination system which we loudly profess.

PERSONNELS : PROPOSAL

The composition of the Boards has already been stated. But to keep the Boards free from any semblance of doubt about its impartiality the University of Utkal has gone a step forward in this direction. It appoints all external members on the Boards of Moderators. The chairman of a board may hold its meetings at a place of his convenience. Far from the politics of a university as well as largely unconcerned with that, the Boards usually transact business beyond the sphere of influence. If this pattern is adopted it would not only maintain impartiality in relation to the appointment of paper-setters, head-examiners and examiners, which is to a very large extent responsible for polluting and corrupting the atmosphere of the universities, but would also save honest and hard-working teachers from the caprices and whims of their departmental bosses, notwithstanding other gains.

TERMS

At the moment most of the universities appoint Boards of Moderators for a period of only one year. The tenure is of too short a duration. If any Board wants to set the matters right, it simply cannot do so in a short span of one year. As such if we wish to effect improvement, the term of appointment of the members on the Board be extended from one year to a period of five years. With its introduction no harm is likely to be caused to the interests of the teachers of a university because all the members would be external members selected on the basis of eminence in their respective fields with moorings outside the university and even the State.

POWER

Such Boards may not be only given the power to recommend names of paper-setters, head examiners and examiners. but also to recommend punishments for the erring ones. They should have the power to recommend cancellation of setting for the leakages of questions, for the maintenance of secrecy and for other mistakes.

QUESTION-SETTING

In conclusion it may be said that I tried to identify the weaknesses of moderation and offered certain solutions for their eradication. I am sure, they will go a long way to lift the university education from the present morass and provide the society with the right kind of leadership in all walks of life.

Question Setting and Moderation

H. BHUMIJ

ACHIEVEMENT OF SUCCESS or failure in the management and conduct of an examination depends, to a great extent, on the method adopted and the type of question papers set for the examination. Questions should be so set that the following objectives can be achieved : *viz.* (*i*) Complete covering of the syllabus with wide choice in answering questions will defeat the purpose. A better method would be to have restrictive choice, that is among related topics only choice may be allowed so that nobody can get away by reading

(*ii*) Questions of dif-
so that total marks
of the candidates

APPOINTMENT OF PAPER-SETTERS

Appointment of paper-
setters prepared and appro
the constitution of the Bo
graduate Courses may, to some extent, be different

(1) For Postgraduate course, the Board of Studies in a Subject/ Branch of Study should consist of : (*i*) only one Professor or Head of the Department of the university in the Branch concerned, as Chairman of the Board, (*ii*) at least three experts in the subject, from other recognised universities of the rank of Professor or Head of the Department.

(2) (*a*) For Undergraduate Courses, *viz.* P.U., B.A./B.Sc./B.Com. the Board should consist of (*i*) only the Professor or Head of the Department of the university in the subject concerned, as Chairman of the Board, (*ii*) at least two experts in the subject of the rank of Professor or Head of the Department from other recognised universities. One retired person having teaching experience in the subject in degree affiliated college/institution may be associated, if necessary. (*b*) Medical, Engineering : (*i*) Head of the

Institution, as Chairman, (*ii*) only one Professor or Head of the respecti
branches of study. (*iii*) at least two experts in the subject of the rank
Professor or Head of the Department from other recognised universiti
(*c*) B.T., Law and other Professional Courses: (*i*) Head of the Institutio
(*ii*) at least three experts on the subject of the rank of Professor or Head
the Department from other recognised universities, (*iii*) one retired pers
having teaching experience in the branch of study may also be associate
if necessary.

DIRECTIONS TO PAPER-SETTERS

(1) While setting papers, the paper-setters shall be guided relating
the scope of the subject of examination, by the syllabus and course prescri
ed in conformity with the standard and extent of knowledge supplied by t
books as recommended from time to time for such purpose. (2) No questio
shall be asked which would require an expression of religious belief on th
part of the candidates. (3) The questions set should cover the entire cours
and they should not exceed the limit prescribed for the examination. (4
The paper set should be such as candidates can reasonably be expected t
answer within the time allotted. (5) The language of the question should b
simple, clear and unambiguous and the questions should be so framed as t
encourage good methods of work and teaching and to discourage uninte
ligent memorising. (6) A question paper should not ordinarily be a ve
batim copy of the one set in previous year. (7) Paper-setters, as far as practi
cable, should avoid any marked change of standard from year to year. (8
The paper set should have some questions which can reasonably be answere
by students of average merit, *i.e.* about 60% of the questions set should b
of general type. It is also desirable to have some questions about (40%
of competitive type aimed at testing their understanding and intelli
gent appreciation of the subject.

MODERATION

Paper setting or Moderation of paper is strictly confidential. Secrec
and sanctity are to be maintained for all the time at any cost. Th
secrecy of the appointment of paper setter and the paper set must b
strictly maintained while the papers are moderated. As such, to maintain
secrecy and sanctity, one-man-Moderation Board for a particular paper or
subject is preferable to a Moderation Board consisting of several heads.
So it is desirable that:—

(*a*) Paper set by a person should be moderated only by a second person
in the subject from the panels of paper-setters approved by the Board of
studies. (*b*) Paper set by Externals should be moderated internally and vice-versa. (*c*) Moderation of paper, as far as practicable, should be restricted to
Professor or Head of the Department of the university. (*d*) During moderation, the essential articles, *viz.* (*i*) prescribed text-books, from which the
questions have been set, (*ii*) sample question papers of the previous years (at
least of two years), (*iii*) sample question papers of the test examinations
of previous years collected from the degree affiliated colleges/institutions,
(*iv*) detailed course and syllabus, and (*v*) other necessary requirements, should
be made available to the moderators.

Practical Examinations

K. K. NAIR

EXAMINATIONS DO NOT have any intrinsic value by themselves but they serve as a means to an end, the end being an effective measurement of the achievements and accomplishments of the candidates. Therefore, before we speak about the necessity, and mode of practical examinations, we should have a clear understanding of the aims and objectives of laboratory courses.

It is universally agreed upon that experimental work is vital in any science and applied science course. Theoretical knowledge and the experiment to test and verify its validity go hand in hand and are complementary to each other. The success of a laboratory programme consists in achieving prescribed physical results and the laboratory is a means of demonstrating this to the student.

There is more or less a general acceptance of the aims and objectives of the laboratory work. They are :

1. To demonstrate and reinforce the principles set out in theoretical lectures and to enhance the students' interest in the subject;
2. To familiarize the student with the methods of collecting experimental data, which involve the understanding of instruments and practice and ability in using and handling them;
3. To give experience in operating and testing instruments, equipment and machinery;
4. To give training in methods of analysis and interpretation of data. Concepts of reliability, reproducibility, accuracy and significance need emphasis;
5. To impart training in the preparation of scientific and technical reports; and
6. To develop ability and resourcefulness in planning and executing projects.

Institution, as Chairman, (*ii*) only one Professor or Head of the respective branches of study. (*iii*) at least two experts in the subject of the rank of Professor or Head of the Department from other recognised universities. (*c*) B.T., Law and other Professional Courses: (*i*) Head of the Institution, (*ii*) at least three experts on the subject of the rank of Professor or Head of the Department from other recognised universities, (*iii*) one retired person having teaching experience in the branch of study may also be associated, if necessary.

DIRECTIONS TO PAPER-SETTERS

(1) While setting papers, the paper-setters shall be guided relating to the scope of the subject of examination, by the syllabus and course prescribed *in conformity with the standard and extent of knowledge supplied by the* books as recommended from time to time for such purpose. (2) No question shall be asked which would require an expression of religious belief on the part of the candidates. (3) The questions set should cover the entire course and they should not exceed the limit prescribed for the examination. (4) *The paper set should be such as candidates can reasonably be expected to* answer within the time allotted. (5) The language of the question should be simple, clear and unambiguous and the questions should be so framed as to encourage good methods of work and teaching and to discourage unintelligent memorising. (6) A question paper should not ordinarily be a verbatim copy of the one set in previous year. (7) Paper-setters, as far as practicable, should avoid any marked change of standard from year to year. (8) The paper set should have some questions which can reasonably be answered by students of average merit, *i.e.* about 60% of the questions set should be of general type. It is also desirable to have some questions about (40%) of *competitive type aimed at testing their understanding* and *intelligent appreciation of the subject*.

MODERATION

Paper setting or Moderation of paper is strictly confidential. Secrecy and sanctity are to be maintained for all the time at any cost. The secrecy of the appointment of paper setter and the paper set must be strictly maintained while the papers are moderated. As such, to maintain secrecy and sanctity, one-man-Moderation Board for a particular paper or subject is preferable to a Moderation Board consisting of several heads. So it is desirable that:—

(*a*) Paper set by a person should be moderated only by a second person in the subject from the panels of paper-setters approved by the Board of studies. (*b*) Paper set by Externals should be moderated internally and vice-versa. (*c*) Moderation of paper, as far as practicable, should be restricted to Professor or Head of the Department of the university. (*d*) During moderation, the essential articles, *viz.* (*i*) prescribed text-books, from which the questions have been set, (*ii*) sample question papers of the previous years (at least of two years), (*iii*) sample question papers of the test examinations of previous years collected from the degree affiliated colleges/institutions, (*iv*) detailed course and syllabus, and (*v*) other necessary requirements, should be made available to the moderators.

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K. K. NAIR

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3. To give experience in operating and testing instruments, equipment and machinery;
4. To give training in methods of analysis and interpretation of data. Concepts of reliability, reproducibility, accuracy and significance need emphasis;
5. To impart training in the preparation of scientific and technical reports; and
6. To develop ability and resourcefulness in planning and executing projects.

It should be quite obvious that the success of laboratory work is particularly dependent on the teacher as it depends more on his inspiration, energy and resourcefulness than on any other factor. Good equipment is desirable and essential for advanced work, but at the junior levels highly creative work can be done with elementary equipment. Flexibility and simplicity are very important in laboratory work for the realization of the above objectives. The success also depends upon the way the laboratory courses are organized and programmed during the total course duration of three or four years. For instance, at the earlier stages the emphasis should be on how to collect data, how to handle the available instruments and to introduce the concepts of reliability, accuracy, reproducibility, etc. Unless the student is properly motivated he often gets bored by the procedure which he goes through in a routine manner without understanding and appreciating its importance and in that process he does not learn much. It is also equally important that the laboratory work should be supervised by the persons giving the lectures. The idea that the laboratory instruction could be treated as chores for junior teachers has been the bane of such courses and should be duly exercised. The work involved is such as to tax the very best members of the staff.

The achievement of a student in his work is dependent on the amount of motivation generated in the student. The student's achievement is the product of the student's natural ability, times the motivation integrated over the period of learning. A strong intellectual challenge is the most effective means of motivation and our educational system must develop in this direction. Even a student of superior ability who loses his desire to learn, quickly becomes an academic liability and such are the students who generate the endless troubles on the campuses.

We shall now turn our attention to the main topic under discussion—the practical examinations. Here again I propose to survey briefly the purpose of examinations in general. Broadly speaking, examination could be considered as a method of measurement. It is an essential part of the teaching process.

Examinations have come in for a variety of adverse comments over the years. However, there are no two opinions about the important fact that examination is an integral part of any educational system and its total abolition is hardly possible. Most educationists seem to agree on the aims and objectives of examinations. They may be summarised as follows :

1. To make the student work up to a schedule.
2. To enable him to acquire the stated degree of knowledge and competence in the subject.
3. To test his capacity to understand and assimilate an idea or a concept and his ability to reproduce the knowledge he has acquired.
4. To give to the outside world a mode of assessment, a criterion for comparison of the attainments and worth of the students.
5. To provide inducement to the teacher to treat his subject well within the prescribed time limit.
6. To maintain standards of teaching.
7. To serve as a measure or index of self evaluation for the student.
8. To indicate the suitability or otherwise of a student for further study and training.

The main problem seems to be, how do we go about organization of the system of examination to realize in practice the above mentioned and widely accepted objectives. One of the earliest comments on our education system dates back to 1902 in the report of the Indian Universities Commission, *viz.* our teaching is subordinated to examination and not examination to teaching. Similar observations have been made subsequently. No system of examination can be satisfactory unless it involves the teachers, the taught and the administration in an intimate manner. The purpose

Examinations are methods employed in a process of quality control. Quality control methods are adopted, implemented and improved upon from time to time to meet the changing needs and to ensure that the final product comes up to the pre-determined specifications and standards of production Quality control is a process and not an isolated event in the manufacturing process and has to be applied at different stages of production If we apply the stringent quality control measures only at the final stage of production, *i.e.*, to the end product, it may turn out to be disastrous and the industry may not thrive for long in a competitive world. Judging the student by his performance at the fag end of the course amounts to this and should not be taken as an effective method of assessing the competence of the student. Such a system of examination could never give a proper measure of the achievements of a student nor would it provide him with

measurement.

Let us now turn our attention to the system of practical examinations we would like to design and implement in consonance with the aims and objectives of laboratory courses and examinations A meaningful and purposeful practical examination should be creative The problems should require thought, analysis and understanding of the concepts and of course, good judgement. The basic question that arises then is whether such examinations are feasible. With the very rapid increase in numbers, practical examinations have tended to become a somewhat routine affair and highly expensive too, without serving any really useful purpose except to ensure satisfactory attendance in the laboratory classes, as a minimum amount of familiarity with the available equipment is necessary. If our aims and objectives of examination are as what we have stated earlier and if we bear in mind

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more effective and productive methods. In the conduct of practical examinations, at least, it should be possible to integrate examinations with the overall laboratory courses so that the results could be made more reliable, dependable and to have a direct correlation with the day to day work of the student and the instructor. The qualities, such as the initiative, skill and understanding of the student could be tested more effectively and to the satisfaction of both the student and the teacher if the student's performance is assessed as he performs each experiment during the course, the result of

each assessment being made known to him then and there. Since the as ment is done in the presence of the student, he is made fully aware o mode of assessment as well as the result of the evaluation. This proc will make the student aware of his day to day progress in his labor course and hence provides him with ample opportunities for improve and adjustment. *In this process, the examinations form part and p of a highly coordinated plan of instruction and supervision throughou* educational career of the student.

In order to ensure a certain degree of uniformity in the mode of as ment which is essential in the case of affiliating universities, it coul arranged to have inspection procedures by which the mode of assess could be controlled. Also, if necessary, *viva-voce* examinations could be ducted at the end of the course which would serve as a guide to both instructor and the student, and the performance of the student in the *voce* could be given certain weightage in the overall assessment. Oral have their usefulness in determining the ability of the students in exp ing correctly and fluently and understanding properly the subject matt

The success of this system depends on certain important pre-requ which should be provided and without which the system is bound to They are summarised below :

1. No educational system can be a success unless the teachers administration want to make it a success and strive hard for its cess. This requires a high sense of devotion, a high degree of sonal integrity and a love for the profession.
2. The laboratories should be equipped adequately and faci should be provided for the students to work individually or in bat of two.
3. Experiments should be properly designed to make them interes challenging and rewarding to the student.
4. Make laboratory an optional course for those who wish to rer in scientific and technological fields.
5. Senior teachers should be incharge of laboratory instruction they should supervise the laboratory work of the students.
6. Instructional load in laboratory should be given the same weigh as theory classes.
7. Adequate staff should be provided to carry out the laboratory w efficiently and in time.
8. The senior teacher who supervises the assessment of the studen his laboatory work should maintain progress card for each stud a copy of which should be made available to the student.

Dissertation and Viva Voce

G. N. TANDAN

THE FACILITY OF thesis or dissertation written under the guidance of Professor, Head or Teacher of the Department of many subjects in the Faculties of Arts and Commerce exists for those students in most of the universities who secure 55% marks in aggregate at their M A. and M.Com. Previous examinations. Although the coverage of the dissertation is confined to local conditions of the area, in many cases it does not bring new facts and observations. This facility creates resentment among non-thesis students because very high marks obtained in thesis discriminates against their all-the-year studies in other regular papers.

Similar injustice and academic discrimination are resented in the case of [illegible] examination extend- [illegible] of very high marks [illegible] ers. This has compelled many of the State Public Service Commissions to deduct the viva marks from the academic performance for calculating the percentage. This synthetic support to the division at the postgraduate examination should be stopped.

The practical examinations also cannot claim impartiality and academic justice with regard to science examination where most of the students pass in practicals but fail in theory.

Introduction of M.Phil after M.A. and M.Com. which enables the students to undertake training in the methodology of research will help in keeping the advantages of thesis and at the same time doing away with the disadvantage of the facility of thesis which should be stopped.

It is, therefore, suggested that the facility of thesis, *viva-voce* and practicals be stopped [illegible] is without marks [illegible] ove injustice and [illegible] thesis and prac- ticals

equal strain, tension and stress, and part of it is unavoidable under any test condition. As far as possible, the rigour may be mitigated by conscious effort, but it can never be mitigated. In fact, high performance is high tension.

The university should indicate the exact hour for the viva voce for each candidate, with a margin not exceeding half an hour, waiting consumes nervous energy. Comfortable waiting rooms for boys and girls with drinking water and washing facilities must always be provided. Viva voce of girls should not be scheduled after sun set. The examiners should be courteous, avoid sarcasm, or effort at humour or familiarity with the candidates, they should place the candidates at ease by providing them seat and acknowledging their salutation, but maintain their distance due to them as examiners, and give the candidate time to collect his thoughts and phrase his answer.

Two

Examination Reforms

M. B ARIYAPALA

CHANGES AND MODIFICATIONS in the present system of examinations have become a vital necessity today. This is due to the importance attached to the university degree in the social and economic context and this has made the students feel that success at the examination is the one goal of university education. 'The decision as to whether a student should be awarded a degree or not becomes a very serious one. The degree is one that will affect the whole future of a student. At the personal level it often determines whether he will consider himself a failure, while in the employment market it has lasting consequences * This is indeed why the examinations have become of such vital importance today. Hence, it is our bounden duty to look into the ways how assessment of students is carried out, with a view to ascertaining their validity and reliability and also seeing whether they fulfil their functions adequately.

Examinations have to be designed as to correlate the teaching and learning objectives. At this point, I wish to draw the attention of the Conference to a very valuable observation made by Dr. Bloom and quoted in the Report of the Committee on Examination Reform—1969, University of Indore:

'Personally, I do not believe that students can learn a complex university subject without devoting time to it. University learning is a full time activity and should, in my view, occupy as much of the students' time as a regular occupation 40—50 hours per week. Less time than that must mean that the work is not of university standard or the student is gaining only a superficial understanding of the subject.

While I have been primarily concerned about the complexity of the learning and the work required, it seems to me that some of the disciplinary prob-

*M. Ager & Weltman—The present structure of University Examinations—Universities Quarterly, June, 1967.

lems in Indian universities must arise from the sheer amount of time available to the student for "non-intellectual pursuits". On a sheer probability basis the student who spends only 20 hours a week in intellectual activity is going to get into more "non-intellectual" activity than the student who spends 40 hours a week in intellectual activity. However, this should not be interpreted as a plea for mere filling of time for disciplinary reasons. The point is that time is required for a significant educational development in the student'.

This is indeed something that affects us vitally, particularly in promoting the studies in the arts faculties. This has become specially significant with the introduction of the Swabasha media. This seems to involve us in finding some form of replacement for the erstwhile reading habit, which will be an inducement for productive original work—creativity being of particular significance in the present academic context.

In view of the foregoing it is not out of place here to consider the functions of examinations. Dr. Lovell gives the "alleged" functions of examinations as follows: (1) To prevent nepotism. (2) To test if the student has acquired a certain amount of knowledge; also whether he understands and can relate the various aspects of the body of knowledge studies. (3) To maintain academic standards. (4) To prognosticate in the sense that G.C.E. 'A' level examination results are regarded as evidence of suitability for entrance to a university course and the class of university degree is looked upon as an indication of competence in a chosen occupation. (5) To test qualities such as intelligence, industriousness, perseverance, stability of temperament, docility to discipline, calmness under stress, etc.....(6) To provide an incentive for students and the teaching staff. (7) To check on the understanding of students, so enabling the teacher to improve the effectiveness of his methods. (8) To provide a means of social engineering in that examinations appear just, but can nevertheless regulate the flow of entrants into educational courses and occupations.

One may perhaps be able to add to these functions, another may require the deletion of some of them. One may even raise the question why hold examinations at all and whether the functions or aims of examinations could not be achieved by other means. To answer all these, one has, it is needless to say, to investigate the shortcomings of the system prevailing at present.

Our attention is drawn by Ager and Weltman to another important function of exams, and this function we have all along tended to overlook. "Another function which examinations could fulfil is to act as a guide to students on their progress. Unfortunately, however, students are often given too little information about their performance to benefit in this way". This is indeed a very important aspect of examinations from the point of view of the examinees. I have always felt that students should be allowed access to their marks and grades. This information, if given to the student, I believe will be of immense help and guidance in their studies. In our universities the grades of the first examination are given to the students, while their performances in the final are withheld from them, only the result being announced. Now that the final examination has been divided into two parts, I hope that the grades and marks of Part I of the examination will be available to the students. This is an aspect to which the authorities must give due thought.

OUR EXAMINATION

Upto last year our examinations were of the traditional essay-type, but I must add that the system and techniques adopted by us have proved fairly satisfactory. Nevertheless the need for reforms has been felt and attempts have been made to effect modifications and changes

THE PRESENT POSITION

(*a*) *Setting of paper* : Our essay-type quesion paper (specially in arts subjects) is a composite one and ensures coverage of the syllabi Students are normally given about 10 questions, out of which they are expected to select 5 and sometimes 4. The paper is set by two examiners who have been teaching the subjects or parts thereof. In the absence of two teaching a subject, a competent teacher is selected from amongst those who have a

When more than one lecturer

field of study, *e g* , prescribed

requested to hand over to the

examiners concerned a few questions on the part of the course covered by each of them. The two paper setters are at liberty to select whatever questions they think suitable or to accept them in a modified form or to reject them if they deem them unsuitable The question paper thus set is gone through by the head of the department who is the chief examiner in the subject. The paper as decided on by the head of the department and the two examiners concerned is passed on for moderation to the external examiner from another university in Ceylon itself or outside. When we have received his comments and observations the papers are passed on to a board of scrutiny, which is expected to finalize the paper. This Board normally includes the dean of the faculty, the head of the department and one or two other members of the faculty whom the faculty thinks has competence in the field of study.

With the introduction of the Swabasha media we have had to set question papers in the Sinhalese medium as well as in the Tamil medium

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most of the students seem to be satisfied with the mere communication of facts and data that have been collected. It is seldom that a student displays his ability to discuss and analyse a problem. This is one of the aspects of the question paper that we in Ceylon have to pay attention to.

It also has been noticed that students attempt to choose questions th permit them to pour out their crammed up facts and avoid questions whi involve any kind of creative thinking. It is obvious here that one has take necessary safeguards in setting the paper to see that this kind of thi does not happen. One method of partially achieving this objective w perhaps be to curtail the choice given to the students. A comment ma by J.W. Saunders* seems to the point, even though it relates to anoth sphere of education.

"........It is particularly undesirable for the........examiner set questions which demand a knowledge of a high proportion of specialis facts......Adult examinations ought to be unprofitable to the "crammer ....The only reliable way to circumvent prepared surface who to ensure that the questions will tax the judgement and exercise the critic faculty, preferably in matters that have general human importance an validity......adult examinations depend for their value on eliciting judge ments about humanity......The emphasis ought not to be, Can yo remember what you were taught? What were the facts in this case? I what order did these events occur? A better emphasis is : What do yo infer from these facts in this order? *In your experience is this true?* Ho do you connect these apparently diverse elements of human experience *Once the adult student has learned that all facts are not of equal value*, ha become acquainted with the university habit of treating each set of facts o its merits, has distinguished a false *inference from a just, he is ready t* advance........into the province of judgements and values, and the goo examination paper exercises him in this growth".

Dr. Lovell's remarks on this aspect are also noteworthy :

"*Moreover the most reliable essay-type questions are those that pos* a definite problem and give the candidates a clear indication of what the examiner is looking for. Such questions do give the candidate scope for marshalling and organising his material. The rather vague open type of questions may give the candidates greater freedom in respect of the ground they cover and in their approach, but it makes comparisons between them very difficult. Most university and college teachers can, as a result of talking with their students, seeing their course work and through previous experience of examining, foresee the kinds of answers they will get. *In these circumstances quetions are likely to be free from ambiguities, at about the right level of difficulty, worded so that different candidates can be compared and marked consistently while at the same time they will further the abilities and knowledge the examiner is attempting to assess.*"

(b) *Assessment of scripts* : Criticism has been levelled against the methods of assessment and evaluation that are being practised today. It is left to us to devise ways and means of overcoming shortcomings that have been highlighted in connection with the assessment of our answer scripts. The main problem is the achievement of a common standard among the number of examiners who are called upon to assess the answer scripts. The difference of opinion amongst examiners about the relative value of a student's answer seems to be a chief source of the unreliability of our examinations. This difference of opinion could result from a number of causes, *e.g.*, a different examiner may look for different things, one may value know-

* Adult Education Papers, University of Leeds, 1954.

ledge of facts or grasp of general principles, one originality of ideas, another clarity of expression. The most dangerous in this aspect, in my opinion, is the expectation quite often of examiners to find their own viewpoints and pet themes and ideas embodied in the answers. The students are quite tempted to cater to this weakness on the part of examiners

The system adopted by us in the hope of eliminating as far as possible the weaknesses that have been stressed above is to obtain the services of two marking examiners who would mark the scripts independently of each other For quite a long time we have had an internal examiner and an external examiner for each paper. This practice of having external examiners too has helped us in maintaining standards, between the universities as pointed out in the above section on setting papers. It was the practice with us sometime back to send marks of the internal examiners to the external examiners; but we have now modified this practice and seek two independent markings both of which may be internal assessments The year before last, I had a case where there was a wide gap in the assessment between the internal and external examiners. In this particular case it was not difficult for us to dispense with the services of this particular external examiner who was found to be far too lenient in marking the scripts. It has not been the practice to impose penalties for such faulty evaluation. In fact even if we do have a code of penalties it will not be easy to punish an external examiner. The only remedy that is left to us is to discontinue the services of such examiners. In the assessment of a paper we have been in the habit of averaging the marks of the two examiners. As the degree examination consists of a number of papers it has always been possible to check on the performance and hit upon a fairly correct assessment of the student.

It is true that we have a fairly comprehensive scheme of marking and grading; but it has been dis-heartening to find that the achievements of students very seldom or rarely reach even a second upper standards, specially in the general arts degree. Whether this position is the result of bad material, faulty examination system or unproductive study habits or all these is a matter that we should take serious note of.

Roy Cox in his Survey "Examinations and Higher Education" points out that "various attempts have been made to improve reliability such as increasing the number of markers, of devising more rigorous techniques of marking but these have not met with a great deal of practical success".

Roy Cox refers to 3 obvious ways of attempting to improve the reliabi-

points in a more controlled way. The third is to increase the number of questions" (*ibid* p. 302). He further warns that "The improvement does not represent greater agreement on the value of the essays; it is merely a devise for getting the same mark every time" (p 303).

Quite recently we too resorted to the former and attempts were made to get one paper marked by a number of marking examiners where the question paper consisted of a number of parts. Markers competent to mark the relevant parts were commissioned to do this, and I must say that this too has helped us to a good extent in the elimination of the subjective element which is considered by many as a source of unreliability.

To get over the problem of different examiners looking for different

things, arrangements have been made for the paper-setters to discuss the question paper with the co-examiners before marking is started upon. The paper setter is sometimes requested to formulate briefly his answer to a question he has set and this is normally discussed at the pre-marking conferences mentioned above. In addition to this practice, the chief examiner in a paper going through a few pilot scripts of each of the other examiners has also been adhered to. The adoption of these measures in themselves could not in any way be said to be a sufficient safeguard against divergences in marking. Other ways and means will perhaps have to be devised in the light of experience.

After the scheduling of marks, border-line cases are reviewed. 40% is generally accepted as the pass mark and answer scripts of those who have obtained 37, 38 and 39 are always reassessed by the chief examiner in the subject, either on his own or with the assistance of one or two of his colleagues. Our objective here is to decide whether the student deserves a pass or not. When all the marks have been scheduled, a meeting of the Examiners in all subjects is held and it is at this meeting that "passes" and "failures" are ultimately decided. At this meeting the examiners very often take a very sympathetic view of students' bad performances and more often than not increase the marks of such cases, when their performances in the other subjects seem satisfactory. Thus we have been able to reduce the wastage.

GRADING

In marking papers it is our practice to give a numerical mark and mark to a pass of 40%. The marks are then categorized into grades. We are always conscious of this grading and this is seen from the fact that at the meeting of examiners, we do not jump from one grade to another even when the case that comes up for consideration is a case for reference. One could, I believe, be nearer the target with a grade than with a numerical mark. Hence my contention is that grading should be recognised and giving numerical marks be done away with. Number of papers submitted to the last Conference at Madurai, recognised this fact. Just as any device adopted in the process of assessment has its shortcomings so may this have. Dr. Lovell observes: "This gives a relative standard based on the performance of average groups of students rather than on supposedly absolute standards, but studies have shown that variability between examiners is sometimes reduced using this method. Once again there are difficulties in using the method. For example, while it is a form of ranking a grave defect is that one script is not usually compared directly with the scripts of other students before the grading is made; as the experience of what one examiner considers to be 'A' differs from the experience of another, their standards will continue to vary; and grading is relative to the group of students examined"*. Johnson and Abrahamson in their article "The effects of grades and examinations on self-directded learning"† have examined the effects of a grading system on their students: "The staff of the University of Southern California, School of Medicine were concerned that their students were far too exam. oriented

*University Teaching in Transition pp. 143.

†Journal of Medical Education, 1968—Abstracts—Research into Higher Education, Vol. 2, No. 2, 1968.

and not sucfficiently interested in learning for its own sake. The number of internal examinations was therefore reduced and the previous more specific marking system was replaced by descriptions of performances in course-work plus gradings of "satisfactory" or "unsatisfactory" for each course .....it did appear that changes in the desired direction had taken place and that such phenomena as cramming for examinations and cutting classes not concerned with examinations had diminished".

VIVA-VOCE EXAMINATIONS

Viva-voce examinations have not been generally (except in the field of [illegible] ations. In the [illegible] rench, German etc., that we have a viva-voce examination. In the past vivas formed a chief element in the selection of students for admission to our university; but were soon given up. Somehow or other the people in Ceylon do not seem to have much faith in viva-voce examinations. The criticism of unreliability that is levelled against an essay-type examination could be levelled against viva-voce examination as well. It is also doubtful whether student's abilities that cannot be validly assessed by objective type examinations could be validly assessed by oral examinations. Two researchers, Colton and Peterson in this field have shown* that despite the careful selection of teams of examiners, reliability varied greatly among them.

CONTEMPLATED MODIFICATIONS

(a) *Objective type examinations*: The Department of Education in Peradeniya, I gather, has been for sometime now using the objective tests to some extent. The question of introducing the objective type of questions and giving more and more weightage to internal continuous assessment are now being considered by the other faculties of our universities. It was only within the past year that objective type questions were brought into the system of the examinations of the Faculty of Medicine. The other faculties are now considering the introduction of this type of question. The objective type questions also have disadvantages as much as they have advantages. Dr. Lovell refers to more disadvantages than advantages.

ADVANTAGES

1. Marking is objective and takes little time. Papers can be scored by machine.
2. A thorough coverage can be made of the syllabus since large number of questions can be set and 100 or more per hour may be answered. This wide sampling of the candidate's knowledge makes for high reliability.
3. Candidates spend their time thinking and not writing
4. If the questions cover all levels of difficulty evenly then the [illegible]

*Journal of Medical Education, 19[illegible]; [illegible] Vol. 2, No 2, 1968.

distribution will approximate to a normal one and it can easily be converted to any other scale.

DISADVANTAGES

1. Setting the paper is a skilled job and needs considerable experience. If the test is badly constructed it will not bring out the capacity to interpret or apply principles. A well constructed test can do this.
2. The examination papers take a long time to set. Moreover, the examiner's opinion as to what is to be examined in detail enters into the setting of the questions. In this sense they are subjective.
3. A considerable amount of reading is required from the candidate.
4. Unless care is taken they can be somewhat artificial in their phrasing.
5. Certain irrelevant factors such as the examinees' previous acquaintance with this type of test affects performance. Thus experience in manipulating one's knowledge to the requirement of the medium is an advantage.
6. No account is taken of the candidate's capacity for lucidity of expression. If this is to be examined separate papers can be set for this purpose.

One disadvantage envisaged by us is the difficulty in setting objective type questions. As Lovell points out, setting objective question papers is "a skilled job and needs considerable experiences". It is also doubtful whether some fields of study would lend themselves to this kind of examinations. The diagnostic nature of an objective paper is an advantage in judging the level of students' ability. Dr. Lovell's observations regarding the objective and traditional essay-type examinations are worthwhile noting:

> "But it is wrong to assume that the objective examination is necessarily a more satisfactory instrument. It may be a more convenient method of examining with large groups and it may be highly reliable. The reason that some objective tests are better than some traditional ones is that the latter are often set in an unsystematic manner and subject to chancy moderation by a second examiner. An objective type examination must be well designed or it will be a less satisfactory tool than a conventional paper drawn up by an experienced panel and marked on a systematic schedule. Both kinds of examinations can be used with profit in order to improve the efficiency of the examination system".

(b) *Continuous assessment*: Continuous assessment has now been accepted more or less by everybody concerned with higher education as a most desirable and essential part of student assessment. Sometime back we practised a semblance of this method in reviewing the border-line cases. In considering whether a border-line case should be passed or failed, his performance at tutorials was considered, and the student was passed or failed accordingly. Even this was relegated quite a while ago, to the limbo of forgotten things. But now there is an awakening of interest as regards the question of continuous assessment, and there is general agreement that it is a must in the evaluation of a student. M. Ager and Weltman referred to above argument that assessment of course-work provides the most "valid" test of the achievement of higher education's aims. Much has been said about the effectiveness, reliability and validity, etc. of this system

of assessment, and one has to admit that continuous assessment will have a most desirable effect on the student. This system is bound to ensure regularity and sustained study and this will undoubtedly help in the creation of an interest in one's studies, and will also bring about a salutary change in the methods of study adopted by students.

As far as we are concerned, attendance at tutorials (lectures are not compulsory) has always been a troublesome question Students have been
head of a depart-
cent attendance at
With the introduction of system of a continuous assessment all these problems that vex the lecturers and I believe even the students will disappear As to the methods and techniques that should be adopted could best be decided on by each individual university. We are already working out a system for ourselves.

(c) *Standardisation*: A system of standardisation has been suggested and is also being followed by the Ceylon Government, Department of Education as a means of adjusting marks to a common standard deviation The Education Department is using some form of standardisation in finalising their O.L. & A L. results. The universities, however, have shown much reluctance in accepting this method of striking a common standard. In

of standardisation is not going to help such students. The majority of such students will continue to be backward after admission, for the reason that they will not be able to catch up with the students from the better schools". The Editorial of this daily paper makes the following comment
is a question which is also a manifes-
st distribution of scarce resources in
attempting to equalise opportunity
in a situation of evident inequality".

This in brief shows Ceylon's attitude to standardisation;but a situation I am compelled to admit, where one has to make a case for some form of standardisation has arisen in the university today. I refer to the divergences in marking in the two media, Sinhalese and Tamil in which languages students answer their examination. It will be necessary in this connection to accept some form of standardisation as the only means available to us now, to obtain a common standard between the two media, and thereby remedy and variabilities if any, in the marking.

CONCLUSION

Considering the foregoing observations, I wish to conclude by stating

evaluation, promote better study habits which will raise the levels of performances and ultimately lead to the achievement of excellence

Reforms in Examination System

SARANJIT SINGH

STUDENT'S ATTITUDE AND TEACHER'S REACTION

WHATEVER PLAN WE may make, it will fail at the implementation stage, unless the persons who are going to implement it keep the objectives in view. For instance, one hears a general complaint these days that lot of unfair means are used by the candidates at the examinations and it has been advocated that there should be strict invigilation. We may increase the number of invigilators, but unless the invigilator realizes the full responsibility entrusted to him, and is prepared to discharge the same faithfully, the increase in number is not going to be of any help. I may cite another example. Reports have often appeared in the papers that at some centres the invigilators have been threatened for carrying out their duties conscientiously. As a remedial measure, it has been suggested that legal protection may be provided at the centres. This does not solve the problem, because the invigilator still runs a great risk in his normal life. With this fear in his mind, he may still find it a safer course to keep his eyes turned away from the examinees using unfair means. As such no incident will be reported and everything will look satisfactory on paper and the facts will not come to surface. I agree that we should not be misled by a few such instances which do get publicity and things may not be as bad at present as we may imagine. But this is an indication of the worsening trend and it won't be long when invigilation will be a complete farce. Quite recently the result of one examination of a professional college has been declared void after necessary investigation of the facts. Such things may be in their intitial stage at this time, but unless timely action is taken, the conditions are likely to deteriorate beyond a point of no return. To me the whole problem appears to be a part of a wider complex and is not confined to the system of examination only. It is a reflection of the general attitude of the public to social, economic and political values. My apprehension is

that after sometime the students are bound to ask for a pass even without any examination. This may sound odd now but it may not be so after a few more years if we consider the way the conditions are getting out of hand

These days students are being associated with lot of activity in the universities which is a very desirable thing. The unfortunate part of the whole process is that the students have gained these objectives (which are only a small part of the total objectives) after an agitational approach occasionally leading to violence, loss of property and disruption of normal life. This has set a bad precedent and in future we are going to witness frequent repetition of these methods. The academic community must realise that as far as academic matters are concerned the role of the students should only be advisory. It will not be wise to give them power on decision making bodies at this stage. I may not be wrong in assuming that some of you might be inclined to consider even these demands of the students with sympathy. This may be the logical things if the conditions were ideal, but as everyone knows they are not and as such it will be detrimental to place power in the hands of the students But will the academic community be able to hold [illegible] To me this appears [illegible] rate public opinion to [illegible] 'icular proposal. This will be a difficult course as opposed to a simpler one *i.e*, to swim with the current. The choice is left to you to bear this in mind while considering the different aspects of the examination system

MASS EDUCATION AND ACADEMIC STANDARD

The academic community finds itself at cross roads. On the one hand they have to deal with the demand for mass education and on the other hand they are concerned with the improvement of the academic standards. [illegible] the standards have to be raised then [illegible] place and this weeding has so far [illegible] ation. In this process the academic community comes for criticism on account of wasteful expenditure. The result is that the teachers and the examiners adopt permissive attitudes like—"why should I harm anyone or why should I get the curse........". With this background the marks are sometimes awarded indiscriminately to comply with certain rules either to pass the candidate or to enable him to get another chance. This is not conducive to raising of academic standards.

A SUGGESTION

To overcome this situation I here venture to put forth a bold suggestion for consideration. We may hold the examination but not to declare pass or fail. After all in the examination we determine the relative performance of the student on some arbitrary scale in a particular set of conditions and this should be indicated on the certificate awarded by the university at the end of the course. For instance, it may mention the number of students appeared, the rank obtained by this candidate, the maximum marks obtained by any candidate and the marks obtained by this candidate etc. This will depict a relative performance of the student in that university or institution and whoever is concerned will form his own opinion and use the information in a manner that suits him. Further, if a candidate likes to

improve his performance, he could reappear in the whole examination and get a chance to improve his grade. With this approach the universities will meet one great objection from the public without compromising with standards, and that is the wasteful expenditure on failed students. Now it will be upto individual student to spend more time, if he has the resources to undergo another year/6 months of teaching in order to improve his performace. This will help in the raising of standards without prejudicing the student's future. This approach may be alright where the individual is judged by another person in his later career. However things will be different in the case of a professional student. For instance, take the case of medical student. Here a student may go out without acquiring professional ability and skill. If he starts his own practice it might be dangerous for the public. You may say that it is for the public to assess the practitioner, but it will be too difficult for a layman to assess professional bodies who should give license for professional work. This will safeguard the public interest.

I do realise that it is a very radical suggestion and many of you may like to reject it straightaway. But I would request you to consider it objectively and dispassionately and then take whatever decision is considered best under the existing conditions. Mere tradition should not be allowed to overwhelm our thinking to an extent that it retards progress.

Centralised System of Examination

V. S. MISRA

IN THE CENTRALISED system of examination the same test is administered to the students taught the same syllabus in different institutions. Most of our university examinations are of this type and they are mainly in view in the further discussion The weaknesses and strength of the system have been discussed in other papers. The present paper is therefore limited to three major problems of the system.

MAINTENANCE OF EDUCATIONAL STANDARDS AND CHECKING OF FAILURE RATES

Some people complain that the standards of university education are [illegible] These views are mostly based [illegible] studies to investigate whether [illegible] so, what are the reasons for the deterioration and what could be the remedy. The standards cannot be raised by the efforts of the examining bodies alone. Active cooperation *of teachers, students, guardians and employers is needed. For the present* [illegible] rds are [illegible] Each [illegible] appallingly high. It is therefore suggested that the examining bodies should immediately conduct the above-noted investigations and wait till the findings are known

A related problem is the checking of failure rates. There could be several reasons for it: Students selected for the course are not fit to take it. The syllabus prescribed is not suitable to the group. Teaching is defective. Learning is defective. Standards demanded from students are too high. In the absence of an impirical evidence nothing concrete can be suggested. However, one reason seems obvious. Most universities consider higher secondary school examinations as qualifying tests for univer-

sity admission and graduation for postgraduate education. This is not a sound practice. Higher secondary, and graduation stages are complete in themselves with their own purposes. Hence it is suggested that examination agencies should prepare special tests for selecting students.

MAL-PRACTICES IN EXAMINATION

If students do not answer questions independently, their marks cannot be considered valid measures of achievement. Thus, mal-practices defeat the very purpose of examinations. Further, these may develop into habit and this will have far-reaching consequences on our national life. Several steps can be taken to discourage these practices: First, the failure rates should be minimised. When the chance of failing is high, students become desperate. Failure does not mean only academic disapproval it means social disapproval too. We should make our examinations such that one who is regular in attending classess should be a sure case of pass. However, graduation should not be considered a ticket for postgraduate studies, or postgraduation for doctorate. As already stated, selection to a higher course should be based on a selection test. Second, we should not attach much importance to examination marks for selection to a post. All those who have passed the required examination should be allowed to apply. The merit of the student at the time of selection as judged by a board of competent experts should be the major criterion for selection to a post. Our giving much importance to examination marks hampers further growth of students. (Why should a first divisioner study? He has already a first divison. Why should a second divisioner study? No amount of further study will make him a first divisioner.) Third, we should enforce strict invigilation and deterrent penalty for such practices.

SPEEDY PUBLICATION OF RESULTS

The first precaution to ensure speedy publication of results is to make the duration of examination reasonably short. For the present there exist long gaps between different papers of examinaton. One probable reason for giving such gaps is to provide sufficient time to prepare for these papers. If examinations measure true learning, such gaps will be of little use for the purpose of preparation. It is therefore suggested that there should not be long gaps between different papers of examination.

To ensure accurate and prompt tabulation of results we may use mechanical device. Most universities can afford to have a few card punching machines and verifying machines, one or two sorters and a calculator. With the help of these machines the tabulation work which is usually done in a week can be done in a day. (If we have access to electronic computers it is still better.)

If the number of examinees is large and mechanical aid is not feasible, publication of results may be speeded by decentralisation of work. Examination area may be divided into several zones, each under the charge of a zonal officer. Much of the work that delays publication of results, *e.g.*, distribution of scripts to examiners and collection thereof, checking and scrutiny of scripts, can be done at the zonal office.

The Semester System

RAVI PRAKASH

THERE ARE MANY arguments in favour of the semester system as well as against it. Let us first consider the arguments against the system.

The problem has been discussed in the report of the committee on University Teaching methods appointed by the University Grants Committee of [illegible] a matter [illegible]

[illegible] when he reads the same portion by the end of the two years of his study.

This will mean development of judgement and understanding of values along with maturity and breadth of vision. The report of the U.K., U.G.C. Committee took up this educational view that "it is only by examining a student in his most mature period over the whole range of his work as an undergraduate that a proper assessment of his quality can be obtained."

As against this view there are so many experiments in American Universities where courses and even sub-courses are split up and the assessments are done of the portion taught and discussed over a period ranging from six weeks to 10 weeks. The educational argument in favour of this view is that at no stage can students be considered to be mature enough to understand all [illegible] relations [illegible] 3rd year [illegible] cannot be tested necessarily in a better way than through periodical tests throughout the course of three years of his instruction. The whole process of education is step by step and the courses [illegible] so [illegible]ibed and or-

ganised as to see that a continuity is kept in the areas from the known to the unknown. This will have the following advantages :—

(1) Avoid too great strain on students at the fag end of the session.

(2) Lessen the burden of doing too many things at the fag end of the academic session.

(3) Reduce the glorification of memory.

(4) Provide motivation for the students to work throughout the year which is broken into two semesters.

It will be seen from the above that for our conditions the semester system will be very useful if it could be properly worked. However, it is possible that the academic members of the university may not be interested about it for two reasons. Firstly, it is taxing for the teachers who have to work harder and, therefore it will mean addition of more teachers, particularly for tutorials and written work done by the students. Secondly, the students themselves may be unwilling to work so hard as they are not used to do so particularly in the faculties of Social Sciences and Humanities.

In that case the second alternative which I suggest is that the present university examinations at the end of each part, *i.e.*, Part I, Part II and Part III, in B.A., B.Sc. and B. Com. examinations shouldbe modified.

The suggestion is that there should be one university examination at the end of Part I which will be equivalent to the old Intermediate examination in Science, Arts & Commerce. This will mean an orientation to students to the college and university atmosphere. The students will be exposed for one year to modes of study required for university purpose as a transformation from the school to the university. They will be made familiar with writing experiences and library studies and emphasis will be on self-study and original thinking.

After this examination there will be an examination at the end of the 3rd Part, *i.e.*, after two years and at the end of Part II there will be a house examination for promotion. It will be recognised by the university but will be conducted by the colleges themselves. It is to be recognised by the university as Part II examination for the purposes of migration of students to other universities. If all universities follow the same method there will be no difficulties for migrating students.

After two years there will be one examination to cover the portion of the two years but 2/3 of the questions will be on the last year and 1/3 on the earlier year. However, that will be a matter for the academic bodies of the university to decide.

In U.K. this system works very well because they have always felt that examining a student in most matured period over the whole range of work is a proper assessment of his quality. Moreover it will be seen that in the University of Lancaster, one of the latest universities in U.K., they have divided an examination in most of the subjects like for example in environmental sciences into two parts. Part I is the university examination at the end of the first year. Part II consists of courses of the second and third year at the end of which there is university examination.

During these years the students have to be exposed to tutorials, writing

examination, different tests, both with notice and surprise tests, use of library and laboratories and encouragement of discussions in seminars and debates.

The whole idea is to keep the student completely occupied with studies and with his reading programme. This means that examination is not the end of studies but only an instrument to teach and check how far the student has followed the course of studies It is a tool to help the student to understand the subject.

The Semester System

D. S. YELIKAR

EDUCATION DEFINED

EDUCATION DIFFERS FROM instruction which is imparted in a controlled environment. The educational process begins at the birth of an individual and ends with his life, may it be general education or scientific and or professional education. It is difficult to define education in a nut-shell. However, it can only be explained.

> "The Science and Art of Education is relative conscience and unconscience, psychological, sociological, scientific and philosophical environmental process leading to the development of all aspects of individual's personality so as to secure the best possible happiness through conservative and creative means."

Education involves individualistic aspects as well as sociological aspects. No doubt, after independence, university education which had its start around 1857 in the modern sense of university education in the British regime, has been expanding.

Educational institutions have to serve the purpose of mass education and at the same time maintain the standards and also the man-power requirements of the society. Institutions should be the centres of learning and research, while exploring the best talent and nurturing it and making it available to the society. Zoologically, man is an animal and it is his intelligence and skill that differentiates him from other animals. The best accumulated by him is the culture which is his heritage. It is universally acknowledged that the educational institutions particularly the colleges and the universities should enjoy full academic freedom. Experimentation on the younger generation should be done with thoughtfulness and maximum care. In this context, it will be worthwhile to critically examine the merits or demerits of the semester system.

WHAT IS SEMESTER SYSTEM?

The literal or dictionary meaning of semester is half year. The semester system prevails in U.S A. and other countries The academic session there is called a semester. The academic year is divided into two or three sessions of four months' duration each called semesters. Number of credits is the basis for the award of the degree. Courses are of 2 to 4 semesters [illegible]

6 semester course the number of credits is 120.

THE NEED FOR SEMESTER SYSTEM

In [illegible]
of 15 a [illegible]
dent. [illegible]
Theref [illegible]
self-contained units. There is a wide range of choice made available to the student The courses are not one subject or discipline but many a time they are inter-disciplinary. The instruction is imparted in different departments depending upon his choice of the course. In short, many things are provided to many people A student is provided with open counselling and guidance by teacher. He or she is advised to choose the right type of combination and in case the student does not find interest, he is allowed to go over to another combination. Ultimately, by looking at the credit earned by him during the course of his studies the student's inclination is discovered and he or she is guided by his or her teacher in the choice of further studies.

[illegible]

chology are a few of the recent additions to the traditional disciplines. The semester system establishes a close relationship between the teacher and the taught. Less of lectures and more of assignments is the core of the semester system. In U.S A. even the co-curricular and extra-curricular activities which are equally important for the development of personality of an individual have to go together and as such are included in the curricula. A student who specializes in debates is examined by the Department of Speech UCLA (Gokak Committee Report) seminars, tutorials, classroom discussions motivate the student and make him self-relient and critical in his approach by making use of his psychological and intuitive faculties. The student there has to work for 25 to 30 hours per week under the guidance of the tutor or the head of the department. The topics of study and the list of reading material are given to him for self-study followed by discussions. In India, a student works for an average of 18 to 20 hours a week.

THE SEMESTER SYSTEM IN INDIAN CONDITIONS

The semester system appears very attractive and appealing to our

educators and the educationists. This system as introduced in some of the Indian universities is conditioned and as such a hybrid one. Of the 76 Indian universities, so far about 20 universities have adopted the semester system in one form or the other. Of those universities which have adopted the semester system, three are worth mentioning *viz.*, Aligarh Muslim University, Delhi University and Meerut University. A critical evaluation made by Prof. S. M. Ziauddin Alavi in 'Educational India' Vol. 36 No. 9, March, 1970, deserves the attention of other Indian universities which contemplate the introduction of the semester system. Prof. Alavi has stated that the semester system in the Delhi and Meerut universities is in troubled waters and that an agitation by the students is a foot for its abolition. He has elaborately described the shortcomings and defects in the implementation of the system in his own university *i. e.* Aligarh Muslim University.

A revision of the curricula/syllabi to suit the instructional needs is a pre-requisite for introducing the semester system. A subject is divided into self contained topics or units. The courses are more or less inter-disciplinary and the student has to go from one department to another for instructional purposes. Diversified combinations are given in the syllabi. However, a student's choice is restricted to those disciplines or subjects in which facilities in respect of staff and other amenities exist. So, on paper, there is a wide range of choice but in fact the choice becomes restricted owing to limitations of finances and staff and other facilities. The semester system also comes in the way of a student's participation in co-curricular and extra-curricular activities which are equally important for the development of individual's personality. The student is occupied from morning to evening either in a lecture room or seminar or in the library. Late admissions in colleges curtail the period of the semester leaving consequentially little time for seminars and discussions in the concluding part of the semester. Breaking the subject into units and half-units results in the student's understanding the subject on a piecemeal basis and not as a whole. It lengthens the daily time-table to 5 or 6 periods. The semester is generally followed by a public examination. Preparation for such frequent examinations leaves little time to the student for his own study. Frequent examinations of the type prevalent here, put financial burden on the students and the parents. The student is examined at the end of the semester for his piecemeal achievement unless there is a comprehensive assessment of his achievements at the end of the course.

The core of the semester system is to cause student to study intensively during the course of the semester period, to make him think and reflect over what he learns and to evaluate his work by having internal assessment by way of allotting marks for his tutorials, home-work, term-work, seminars, orals etc. In some of the universities there was evaluation through class-tests which had to be given up after due experimentation. Extraneous factors dominated the evaluation. The colleges hardly maintained any record for class-tests and the class-tests which should have been held periodically were not conducted as such, but marks were forwarded at the end of the year. There were complaints against biased marking. There were complaints also from the colleges of unhealthy competitions leading to high marking to boost up the performance of their own students and so on and so forth although only about 20% of the marks for the papers were usually set aside for the class-tests. Prof. Alavi has concluded in

his critical evaluation of the semester system in practice in his own university that "the semester system is hardly suited for Indian universities." Considering the problem from the financial point of view also, it will be admitted that in U.S.A. and other developed countries the expenditure on education is borne by the private agencies. Country like India illaffords to spend on the experimentation and that too on an experiment which has failed miserably in some of the Indian universities after serious trials.

CONCLUDING REMARKS

With such experience about the working of semester system, it is diffi- [illegible] in its infancy can afford to introduce [illegible] Indian universities adopted the three [illegible] improvement over the earlier four [illegible] hind this was to reduce the number of examinations and to have an integrated degree course After its implementation, the academicians came to the conclusion that it is not useful and workable as it was thought to be The old four year degree Course had two examinations and the present three years degree course has four examinations including the Pre-university Many who earlier enthusiastically adopted the three year degree course and worked it, have, of late, come to realize that older universities like the Bombay University have proved to be wiser in not adopting the three year degree course Similar should not prove to be the fate of the semester system Experi- [illegible] in the case where experiment of regional [illegible] has been tried in place of English, there [illegible] section of students, in whose interest it was done that they should revert to old practice of learning through the medium of English. The latest example of this is of Tamil Nadu colleges where students went in agitation against Tamil medium which was introduced there a few years ago and revert to English as medium. The Government on referring the issue to an expert committee has decided to yield to this demand as reported lately. All this implies that any major departure in educational policies and systems has to be planned well by considering all aspects and not merely on sentimental considerations or cheap popular slogans.

It is unfortunate that our present educational system is becoming highly examination-oriented Examinations, of course, cannot be dispensed with They are only a part of the whole system, in which imparting and learning processes are other parts Examination and through it degree-hunting are the order of the day. The indicative signs of this are the growing number of examination guides, coaching classes, private tuitions etc Coming now to the new stunt *viz.*, the semester system, it is also going to be looked upon merely as another form of examination procedure, the all-pervading high objectives of education are going to be lost. The true semester system comprises of three aspects *viz.*, method of teaching, the process of learning and the evaluation procedure (popularly known as examination). If it is to be successful, it has to be worked in the true spirit of these aspects and in an environment that will promote the honest growth of this spirit, with good syllabi and with serious-minded student community.

It is the modernisation of the curricula and of the traditional method of teaching that will go a long way in raising the standard of education and in improving the quality of students. Obviously for this to happen, the teacher has to be matched to the dynamism of curriculum and has to inspire the student and the community at large by his scholarship and by his role as a counsel, friend and guide to them. Mere introduction of semester sysem in its aspect as examination procedure is not going to help. It will bet just like putting the cart before the horse in the attempt at reorientation of educational policies and planning.

Semester System in Improving University Education

RAIS AHMED

WHY RADICAL REFORM IS NECESSARY

UNIVERSITY EDUCATION IN India in the modern sense of the term started in the British period. The narrow ends for which the universities were at first established are clearly discernible from the purpose of starting the universities, stated in 1857. One of the purposes was "to ascertain by means of examinations the proficiency acquired by candidates" and the other was "to provide a test of eligibility for government service".

In this background, both the narrow spirit of our university education and the dominating role of the examinations are understandable. It becomes clear why university education was confined to a limited knowledge of a few subjecs in a small set of combinations useful for discharging the routine functions in an administrative office, in the army, or in maintaining agricultural and engineering services

Now, however, the position has changed in two respects We are

hundred centres of research and possess a correspondingly large number of educational institutions. We, therefore, require personnel for filling a vast variety of routine jobs, and more importantly we require personnel to fill jobs of a nature which never existed before; jobs which require hither- learning. They demand men of ideas, who can meet situations which are not

On the other hand, each discipline has been

It is the modernisation of the curricula and of the traditional method of teaching that will go a long way in raising the standard of education and in improving the quality of students. Obviously for this to happen, the teacher has to be matched to the dynamism of curriculum and has to inspire the student and the community at large by his scholarship and by his role as a counsel, friend and guide to them. Mere introduction of semester sysem in its aspect as examination procedure is not going to help. It will bet just like putting the cart before the horse in the attempt at reorientation of educational policies and planning.

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In this background, both the narrow spirit of our university education and the dominating role of the examinations are understandable. It becomes clear why university education was confined to a limited knowledge of a few subjecs in a small set of combinations useful for discharging the routine functions in an administrative office, in the army, or in [illegible] agricultural and engineering services.

Now, however, the position has changed in two respects. We are an independent country and as such possess a vast legal, [illegible] [illegible]

cultural relations with a large number of countries. We have [illegible] hundred centres of research and possess a [illegible] of educational institutions. We, therefore, [illegible] a vast variety of routine jobs, and more [illegible] to fill jobs of a nature which never existed before [illegible] tofore unconceived combinations of learning. [illegible] men who can think and create, [illegible] described in books.

On the other hand, each [illegible]

) years from a somewhat static to a very much dynamic situation. Know-
:dge and creative effort is growing into areas which often lie between estab-
shed disciplines. The sciences are developing very rapidly. Engineering
as to keep pace with the sciences. The social and political structure around
s is changing rapidly and as a result of this a great deal of new thought
as gone into the established disciplines in humanities and social sciences.
: is to be noted that in response to the new demands made on us the orien-
ition of the universities which was entirely educative, has now to a large
xtent become creative. The universities are not merely teaching institu-
ons. They are active centres of research.

The question arises, whether the old educational pattern can be modi-
ed here and there to serve our new needs, or whether some radical changes
re called for. It is obvious that only the future will tell if institutions run
n the old pattern will serve the needs of the new society or if those who
re prepared to adopt flexible new pattens will serve the future needs bet-
er.

A pattern that seems to be very attractive for meeting the new demands
n education, is the semester pattern or system. This system means many
iings to many people, but the system which I have in mind, I believe, will
ecome increasingly popular since it is manifestly in consonance with re-
uirement of the times.

PROPOSED NEW PATTERN

In the semester system which I visualise, each department of studies
r board of studies would divide the subject matter in its sphere into a
umber of self-consistent topics or areas or units. The material in each
nit should be such that it may be covered in 30 to 40 lectures, delivered
ver a period of about 18 weeks. Of course there could be half units and
metimes connected sequences of such units. We may call such self-con-
stent units as "semester courses". For each course there would be an
amination at the end of the semester and during the course it would be
esirable to have internal assessment of the performance of a student based
n tests, tutorials or other assignments.

Every student would be assigned to a teacher who could advise him
garding the courses to be studied. Therefore, a student with the help of
is adviser would be able to select a combination of semester courses given
y various departments of studies for attending during the semester. The
dviser will keep in view the particular inclination of a student including
is performance in earlier semesters, the requirements of the main discipline
n which the student ought to concentrate and also the schedule according
which the courses are being taught in a particular semester. There would
a minimum of restrictions on the combinations of courses which a
udent might wish to study.

This would be an ideal system treating each student as an individual
aving specific requirements of study. This system would also make it
ossible for a programme of study to be constituted which may be inter-
isciplinary in character and at the same time may be oriented towards a
oecific objective.

Inter-disciplinary courses are already being studied in a way, but the
ioices available in the old system are rigid in two respects. Firstly, only

two or three disciplines can be combined leaving out a number of important components; secondly, each discipline has to be studied for at least two or three years by undergraduates. The semester system based on unitary courses would make the choices far more flexible, which is essential because any undergraduate studying a particular subject in depth requires courses which are given by a number of departments. This flexibility is essential because inter-disciplinary courses cannot be specified for all time and for all men. Disciplines develop interconnections with other disciplines in a dynamic sense. Again, the gifts and motivations of a particular student may require an inter-disciplinary composition which we may have traditionally considered as irrelevant or unnecessary. The system of choices described is flexible in another sense. Undergraduates in our universities are usually in the age group 15 to 18 and this is a period when the interests of the students are likely to shift from one subject to another, before they are established. Therefore, we must have a pattern of education in which it is possible to allow a student to change from one major area to another in the course of his studies. Of course, each institution would lay down certain rules for the choice of courses and for the combinations and their changes. But it may be emphasized that these rules must be minimal so that they give the maximum freedom to a student and his adviser

The masters courses in our universities are usually single department courses. A student studies either Physics or Chemistry or Biology etc. With the semester system the concept of inter-disciplinary courses could be carried to the postgraduate level This would enable students to study disciplines much more effectively and economically. A student of physics could study chemical thermodynamics in the department of chemistry or group theory in the department of mathematics. In that with existing facilities many new areas could be covered at the postgraduate level, areas in which we are not yet training people and in which there are wide opportunities.

I, therefore believe that education can be made more satisfying to the individual and it can serve the needs of a developing society much better if we adopt the semester system.

SOME ADVANTAGES OF THE SEMESTER SYSTEM

A number of people have considered the semester system as a constructive innovation mainly because the impact of the annual examination in distorting the objectives of education is greatly reduced. There is an examination at the end of each semester and, therefore, a student has a tendency to study more uniformly throughout the year. Furthermore, the reliability of the examination improves as a whole because a student is subjected to shorter but more numerous questions. In my view, this is an important advantage but relative to the question of meaningful education discussed above, this is a less important point. In fact having too many examinations results in waste of time both on examinations and on preparation leave. Hence in this respect the semester system could be a disadvantage, unless the examinations themselves are reformed.

As far as the examinations are concerned it is quite true that they have grossly undermined the entire objective of education A student should be trained in thinking, in being self-reliant, and he should be encouraged to utilise both the logical and the intutive faculties. The examinations

on the other hand tend to rely on memory and on preparation of certain expected questions. Thus no matter how well the educational process is designed, the examination which emphasises a different set of qualities, will always dominate the picture.

The objectives of education can only be served *if*, in spite of every fault that is usually mentioned in this connection, assessment of a *student's* work is left to the teacher concerned. This is also the accepted policy of various committees that have been concerned with this question. It has been recommended again and again that our institutions should move away from the "external" system of examination to an internal system of examination. There is no need to examine this point in detail but I believe that in the academic world people will readily accept it. The semester system which I have described above is very well suited to intimate contact between the teacher and the student. The adviser should not only be an adviser for academic work but he should also be a counselor for the student on all personal and educational problems. The teacher who is entrusted with a course should make an assessment of the day to day performance of a student and the same teacher should examine the student in the same class-room at the end of the semester.

One of the problems which has plagued our education system is the high rate of failures at all public examinations. A good part of the failure is due to the fact the various "papers" in each examination are tightly coupled together and failing in one often leads to failing in all. In the semester system it should be very easy to make a rule that if a student has successfully completed the study of a course as shown by his day to day record, although he may fail in the semester examination of that course, he should hot have to read the course again. In addition, if a student has passed in a course both in the so called sessional work and the examination, he should not have to repeat the course simply because he has failed in other courses. Thus passing in semester courses would be on the basis of each individual course and a record would be maintained regarding the number of the courses a student has passed. When he has completed the required number of courses for a particular degree, the degree may be awarded to him. In this manner, a student would never fail in the semester system, but certainly different students will take different periods of time to complete their courses. This would save not only money and accommodation in educational institutions (which is otherwise clogged by failures) but it would also give the student and his family relief from a great deal of emotional strain arising from the frustration of failure.

A significant advantage of the semester system and its unit courses is the possibility of organizing courses during the summer vacations. Not only would failures get a chance to repeat courses but other students would also be able to take additional useful courses during the vacation. This would lead to a more effective utilization of a university's facilities which normally stand idle during vacations. This advantage is of particular interest to our country since the pressures for university enrolment can be partly met by spreading out and staggering semester studies.

NEED FOR EXAMINATION REFORM

Semester systems of different kinds are now becoming increasingly popular in India and at present there are more than 20 university institutions

who have adopted this system. At the Aligarh Muslim University we have adopted a semester system which is very closely similar to the one I have [illegible] except that our examinations are still largely "external". [illegible] nity is not so self-confident regarding [illegible] because there is fear that [illegible] tions, its degree may be [illegible] ations [illegible] if a single u [illegible] denigrated. [illegible] are going on particularly at the [illegible] have a high academic reputation in the country and abroad [illegible] that traditions take long to wither away. But time is not far when we will be able to go over entirely to examinations being entrusted to teachers of the various classes.

I have not mentioned the various difficulties which one experiences with the semester system. In principle a more flexible system offering a [illegible] of course combinations would require greater efficiency in the [illegible] of result sheets. Shorter working [illegible] ation of infor- mation [illegible] lucational [illegible] set up designed for a rather [illegible] system is free of faults and the most important fault of the sem[illegible] perhaps is that it examines a student on piecemeal achievement. Comprehensive examinations could be used to take care of this difficulty.

;uggestions Concerning ;xamination Reform

. P. GUPTA

ME QUESTIONS

HILE RESTRUCTURING THE examination system, the questions that call for ention are:

(1) Why should a candidate be made to wait for his test of proficiency for one long year?
Can this waiting period be curtailed?

(2) Why should a candidate be detained and branded as 'failed' each time he takes an examination, although he has had no luck and chance in one or two courses/papers?
Can this waste of human material be avoided and frustration checked?

(3) Why should a failed or detained candidate be made to wait for one full year in order to get promoted to the next higher class?
Can this be changed?

(4) And, why should a candidate be made to carry a load of his present course-contents for the whole year without any qualitative benefit?
Can this load be reduced and quality be improved?

R AIMS: STRUCTURAL CHANGES NECESSARY

One thing is certain: no foreign system whether American or English ı be implanted in India. We have to design and develop—or rather uld—our own system suiting our requirements, conditions, objectives, ources and the stuff. We need developing a system which must aim at:

(*a*) Reducing the yearly quantitative (not qualitative) load on the student.

(*b*) Reducing the gap between tests of proficiency and knowledge.

(*c*) Extinguishing fear of detention and avoiding thereby human wastage in the name of yearly failures.

(*d*) Removing fear complex among students against examinations.

(*e*) Changing the attitude of students in diverting them from using unfair means and dagger-policies in and out of examination halls.

A NEW SYSTEM PROPOSED

In the new system that I propose, instead of holding one examination at the end of one fı
nations during the
and the second to
Examinations'. Part of the course-contents for existing annual examination should be taught and tested during the first semester and the rest of the course-contents be taught and tested in the second semester. The material in each course-unit would be such that it may be covered in lectures over a period of 20 weeks. Of course, these could be half-units or connected sequences of such units but as far as possible self-consistent and self-contained topics, areas or units. These may be called Unitary or 'Semester Courses'.

This will reduce waiting period to the students for the examinations and will also amount to reduction of quantitative (not qualitative) load for examinations.

In this process of bi-yearly examinations, each course-unit will be devoted week-long of continuous and concentrated teaching and study (as against 3 days in a week for ten months in the present system) with the result that more intensive teaching and reading of course material will become possible without 'hang-over' of the subject for one full year as at present.

Thus the impact of the annual examination in distorting the objectives of education will be greatly reduced and there being an examination at the end of each semester, a student will be prone to study more uniformly thro ... part of the stud ... eginning of the ... the session as at present. The quantitative load for an examination will be reduced without lowering the quality of work and the student will feel free from the load of course after each half-year devoting himself, immediately after, on fresh studies for the next half-year. Innovations in the area of teaching techniques will become possible and modernisation and straightening of course-contents will become easy.

In the proposed semester system, a candidate failing to reach the qualifying level in any course/paper at an examination would not be branded as 'detained or failed'—on the other hand, he would be allowed to undergo instructions prescribed for the next semester and be required to clear the unfinished courses/papers of the previous half-year as 'left-over'. This process of clearing the 'left-over' may be allowed to go on till the candidate reaches the end of final degree examination. He should not have to repeat the semester course simply because he has failed in some course-units. He would be admitted to the degree only when he has completed the requirements of clearing all courses/papers prescribed for the degree.

This will help in reducing the wastage of human material caused by

failures' at each examination, will save money and accommodation in educational institutions, otherwise filled in by failures, and will also save the student and his family from emotional strain arising from frustration of failures.

The candidates will make it possible to take different periods of time to complete their courses and degree and will thus be enabled to plan their academic career over a period of time. All the graduates will not then flood the employment market at the same time and in the same month of the year causing thereby a famine of jobs. The candidates will have the facility and convenience of clearing the degree courses as and when they will feel free to do so. The steel-frame aspect of university examinations will be eliminated.

Another advantage of the semester system will be to utilize the summer vacations when it would be possible to teach and test courses not only to the repeaters but also to freshmen deciding to offer additional courses during the summer recess. This will lead to effective utilization of university resources remaining idle during the vacations and would also meet the pressures on university enrolment by spreading out semester courses and studies.

Thus with two examinations of shorter gap, less work-load, with more compact and concentrated teaching, and with no fear of detention or failing, a candidate will have no reason to suffer from examination fever and fear-complex against examinations. And then probably, he will not be encouraged to use 'dagger tactics' in the examination halls. He will have the consolation and the facility of clearing the courses at each half-year without waiting longer for the annual examinations or repeating the courses as a 'repeater' carrying with him an inferiority complex amidst his juniors. There will be more compact teaching with better output. Teaching methods and devices will change for the better, the teacher will have a compromise between teaching and talking.

MERITS OF THE PROPOSAL

1. Reduction of waiting period for tests of proficiency from one year to six months.
2. Curtailment of work-load for each examination without reducing the total quantity of courses.
3. Resolving fear complex among the students against examinations by reducing the gap between two examinations.
4. Avoidance of wastage of human material through detention and failures, without lowering the standard. Candidates will meet the requirements of the degree on a dispersal basis.
5. More intensive and compact teaching by devoting more time and introducing compact teaching practices.
6. Supplementary examinations and re-examinations will be dispensed with resulting in economy and comfort to administration.
7. Course contents and course material will be improved through compact teaching and concentrated instructions in the class-rooms.
8. Awareness about the examination among the examinee-students and a sense of trust in the system.

Summing up, our examination system need be recast so as to fit in the present context of things economic, social, political and psychological. Claims are often made in favour of rationalising the syllabi or modifying the teaching techniques to resolve the present examination ills. Also, suggestions are advanced to improve the calibre of teachers and standard of books to rectify the examination malaise. But all these palliatives will be of little value unless examinations are made to be the testing instruments of knowledge and are made an inseparable limb of the students' reading schedule by assimilating them into over all teaching and reading programmes of colleges and universities. Marginal adjustments or even manipulations in syllabi, books, reading material and enhancement of grace marks each time will make nothing more than a patch-work, unless the system and the frame of examinations is improved and redesigned. The system must be acceptable and must aim at judging the over all performance and knowledge of examinees. It must be easy to operate, economic to adopt, clear to understand and follow and clean to create confidence among all concerned. The position of the teacher, the chief motivating force behind the system, has to be redefined to yield better results. Unless the system is redesigned to meet the situation, as it obtains today, examinations will continue to be a 'police action'—wherein examination halls will have to be guarded by the police force and the invigilator will have to act like a 'police man'. The structural change proposed here above is only the first step in right direction—later will come other questions of tools and techniques

Internal and External Assessment

N. B. TARE

THE PRESENT SYSTEM of assessment which prevails in most of our universities is by way of annual and biennual external assessments at the Pre-university or degree courses. It is really high time that we seriously think of abolishing the external assessment system, partially at least, if not altogether.

This does not mean that there is need to condemn the external assessment outright. The internal assessment should take its place gradually and partially but should not altogether supplant it. Conditions are not quite ripe in our country for such a total and radical change. The internal assessment will have to be adopted stage by stage as examination is an educative process and plays a great role in educating the students. External assessment should be supplemented by internal assessment at the Pre-university and degree courses in the science subjects to start with, and if it works well, it should gradually be extended to the other faculties also.

The internal assessment may be based on tutorial system at the Pre-university or first year degree courses, and at the B.Sc. or engineering or medical degree courses it should be based on semester system. The semester university examination should be held at the end of each academic term in definite units of courses of studies. This will reduce the total burden of mental tension at the end of the year caused by one single final examination. There should be a mid-semester test or internal test conducted by the college for which internal credit should be given. The marks for internal assessment and the external assessment should be combined and final results prepared. Such semester examination system with slight modifications has been implemented in Delhi University, Aligarh Muslim University, Banaras Hindu University and Vishva Bharati University. The weightage of marks for the internal assessment both for theory and practicals varies from 20% to 50% as given in the "Report of the examination reforms in Central Universities 1969". The semester system examinations have been also

implemented in about nineteen universities as stated in the Annual Report of the University Grants Commission 1968-69.

The "Report on examination reform 1962" brings to light the fact that the assessment of day to day and periodical work of the student varies from one university to another. 'Marks allotted to internal work in some of the subjects vary from 5 per cent to 100 per cent, the maximum of 100 per cent being the case in certain practical aspects of engineering courses'. It is likely that there would be some variation in the marks of internal assessment as compared with external assessment but this should not be of an extreme degree. It could be justified that the students could earn more marks for sessional work or for internal tests conducted by the college because a limited portion with two or three topics in a subject for such internal test is completed in hardly a couple of months. The internal option is also given to some extent for these sessional works or internal tests and the students obviously get the advantage of answering questions of their choice. Memory is not much taxed as compared to the university examinations but there should not be a great disparity of marks in the internal assessment as compared with external assessment. There is no doubt that the internal assessment coupled with external assessment is a very good system by and large but the success of the scheme depends on the greater reliability and correctness in assessment. The system of internal assessment will have a deep impact on the study and learning habits of the students. Probably the over-estimation of the internal assessment may be due to the desire of the teacher to improve position of the student at final examination. While the marks obtained at the internal assessment in some colleges may be trustworthy but where there is an over-estimation in the internal [illegible] marks may not be reliable and then the combined marks of the internal and external assessment become suspect.

In the Shivaji University prior to the introduction [illegible] system, a meeting of the principals of the science colleges [illegible]. A working group was set up to suggest ways and [illegible] the semster system and the academic council [illegible] with the re-organisation of the annual examination into [illegible] examinations. The boards of studies were [illegible] the syllabi to suit the mid-semester examination [illegible] the college and semester examination to be conducted [illegible] at the end of each term.

The semester system was first [illegible] five years ago in the Shivaji University [illegible] examination which has a four-year [illegible] marks each at university examination [illegible] conducted by the college; 25 [illegible] have been assigned in many [illegible] college. Assessment of term work [illegible] of the principles involved [illegible] Passing in term work [illegible] workshop is a pre-requisite [illegible] This system has compelled [illegible]

The suggested working [illegible] encouraged the Shivaji [illegible] has since been introduced [illegible] nations in the science [illegible]

tion is held and a mid-semester conducted by the college with certain percentage of marks assigned to day-to-day practical work. A credit of 20% of marks is given to the mid-semester examination conducted by the college. Passing in the semester examination of the university is a condition for admission to the next semester course. In respect of practicals, 25 marks are assigned by the college to the assessment of day-to-day practical work and 75 marks are reserved for university semester examination in practicals at the end of the second semester and 50 marks are assigned to day-to-day practical work and 150 marks are kept for university examination in practicals in principal subject at the end of the fourth semester. In assessing day-to-day practical lessons the student's general merit as assessed on the basis of initiative and originality method of work, completion of journal and regularity in attendance are taken into account.

The semester system has been introduced to the postgraduate course in M.Sc. from this year wherein internal credit of 100 marks (60 for theory and 40 for practicals) is assigned for each semester and 300 marks are assigned (200 for theory and 100 for practicals) for university examination at the end of each semester. In respect of mathematics, 300 marks are assigned for university semester examination and 100 marks are assigned for internal test.

The general view is that the scheme is definitely benefitting the students. The classes are more regularly attended and students are putting in more serious and regular work. So far as the teaching is concerned, it has become necessary for the teachers and management to see that it is strictly done according to schedule. The system imposes an obligation on the teachers and the managements of the colleges to see that portion assigned for the semester is taught within the semester period as there is no scope for leaving a backlog of teaching work to be made up at the fag end of the session by extra lectures, etc. as is sometimes the case when there is only one final examination at the end of one year course or two year course.

Further, in the Shivaji University the system of tutorial work and the mid-term test examination by the colleges has been introduced at the Pre-degree and B.Sc. Part II & Part III and M.Sc. courses respectively. This supplements the regular university examination. 20% of the total marks in each subject in theory paper are assigned to the tutorial work which is evaluated by the teachers in the subject. The marks of the tutorial test and the mid-semester test are made known to the students concerned immediately after the evaluation is done. The tutorial exercises are then discussed with the students in small batches. This proves of great help to the students since it serves as a warning to those who lag behind and an encouragement to those who do well. The students get an opportunity in these tutorial batches to get their performance properly discussed by the teachers. The colleges have to keep records including tutorial note-books for some period after the results of the annual examination for inspection by the university authorities. The university has thus a means of ascertaining the standard of assessment adopted by the different colleges.

It is observed that this system of assessing tutorial work of the Pre-degree level and the system of internal assessment combined with regular mid-semester and semester examinations at the B.Sc. level can provide the best solution under the circumstances to examination reforms. The successful implementation of these systems of assessment and examinations depends on honest and dedicated teachers. Sometimes glaring difference

has been noted between marks obtained in the internal tests or the tutorial work and those obtained at the mid-semester test and the university semester examinations. This variation in the performances of some students is a matter which needs serious consideration. It may not be difficult to devise checks to keep such variations at a reasonable level

The following suggestions would secure greater reliability and correctness in the marks of the internal assessments and the external assessments, till the pattern is stabilised.

The marks for external assessment be scaled with internal assessment where there is a disparity of more than 15% of marks in semester and mid-semester examinations

If the difference in internal assessment and external assessment is very wide the answer books of such students should be called for scrutiny and re-evaluation by a panel of examiners from the members of the board of studies in the subject, appointed by the university authority.

Award of prize, etc. should be on the marks of external assessment as long as the university is finding glaring differences between the marks of internal assessment and the external assessment in different institutions.

Marks of the internal assessment and external assessment should be shown side by side in the marks certificates issued to the students by the university.

There should be a separate head of passing with the standard of 35% at the semester and mid-semester examinations.

Internal credit of not more than 20% marks be given for internal assessment at theory and 25% for practicals. We should later on think of increasing the percentage when the scheme stabilises.

The university should check the reliability and validity of the marks obtained by the students at the internal and external examinations and should give a warning to a college, where there exists a great disparity of marks between internal and external assessments.

We will have to review the position of this assessment system every two or three years. If these measures are implemented meaningfully and honestly, and sincere efforts are made by the dedicated teachers, we will be able to achieve fruitful results and to raise the standard of education

Internal vs External Assessment

C S. BENNUR

THE SECONDARY EDUCATION Commission (1952) and the Bhopal Seminar on Examination (1956) strongly recommended in favour of taking internal examination results of students into consideration for the determination of their ability in a subject.[1] The Examination Reform Committee of the U.G.C. (1962) recommended that the experiment is worth trying.[2]

The Education Commission (1964-65) also recommended to abolish set syllabuses and the external examinations based on them altogether and to replace them by a system of internal and continuous evaluation by the teachers themselves.[3]

From the above recommendations it is quite clear that internal assessment is accepted as a necessary adjunct and that external examinations be done away with in course of time.

THE PROBLEM

In this paper an attempt is made to see whether external examinations can be done away with and if so what conditions are to be fulfilled before external examinations could be replaced by internal assessment in our universities.

1. Measurement of Achievement in Mathematics—Dr. A. K. Gayen—Report No. 1 of the Research Project on Examination —sponsored by Ministry of Education, Government of India, New Delhi, 1961, p. 167.
2. Report on Examination Reform—University Grants Commission, Delhi, 1962, p. 41.
3. Report of the Education Commission (1964-66) Education and National Development—Ministry of Education, Government of India, 1966, p. 290.

The studies relate to a few random cases. They are by no means exhaustive and hence the conclusions are purely tentative.

(1) *The B.Ed. Course* : The system of internal assessment is a part of the total assessment of the B.Ed. students. In the practicals students are assessed continuously and at the end of the course internal marks are added to the marks obtained by students in the external practical examination.

For theory there is no internal assessment as such but the principal could set apart a few marks for essays and tests These marks are added to the internal marks. The following tables give the coefficient of correlation between internal and external marks in practicals and theory separately

TABLE No. 1

Coefficient of correlation between internal and external marks of B Ed. students

(Practicals)

B.Ed. practicals	Coefficient of correlation r	Whether significant or not	Number of subjects n
1967-68	41	Significant at 01 level	75
1968-69	56	Significant at 01 level	100

TABLE No. 2

Coefficient of correlation between internal and external marks of B. Ed. students

(Theory)

B.Ed. theory	Coefficient of correlation r	Whether significant or not	Number of subjects n
1967-68	53	Significant at 01	63

From Table No. 1 (Practical) it could be seen that the coefficients of correlation between internal and external marks in practicals are significant for both years and for different batches of students. They are significant at .01 level.

Similarly, for the theory part the coefficient of correlation between internal and external marks of students is .53 and is significant at .01 level

(2) *Engineering Courses* : In respect of engineering students marks of [illegible] ngineering course 20 [illegible] xternal examination. [illegible] internal and external marks.

*The marks of the sample cases were kindly made available by the Controller of Examinations, Karnatak University, Dharwar.

TABLE NO. 3

Coefficient of correlation between internal and external marks

(Second Year Engineering Mathematics Paper I)

	Coefficient of correlation r	Whether significant or not	Number of subjects n
S.E. Engineering Mathematics Paper I	·04	Not significant	130

It could be seen that there is no correlation between internal and external marks

(3) *Postgraduate Courses*: There is internal assessment carrying 100 marks in the postgraduate science courses (M.Sc.). Internal assessment is an integral part of the course. The marks are assigned on the performance of students in the periodical tests. The internal and external marks are added.

However, in the postgraduate courses like arts and social sciences (M.A.) there is internal assessment but the marks are not taken into consideration.

TABLE NO. 4

Coefficient of correlation between interml and external n arks

[M.Sc. (Botany) students]

	Coefficient of correlation r	Whether significant or not	Number of subjects n
M.Sc. Botany 1970	·77	Significant at ·01 level	37

It could be seen from Table No. 4 that there is high correlation (. 77) between internal and external marks and the coefficient of correlation is significant.

TABLE NO. 5

Coefficient of correlation between internal and extervol marks

(M.A./M.Sc. Mathematics students)

	Coefficient of correlation r	Whether significant or not	Number of subjects n
M.A./M.Sc. Mathematics students 1970	—0·38	Not significant	30

There is no correlation whatsoever. The marks are not taken into consideration.

TABLE No. 6

Coefficient of correlation between internal and external marks
[M.A. (English) students]

	Coefficient of correlation r	Whether significant or not	Number of subjects n
Course of M.A. (English) 1970	71	Significant at 01 level	26

There is high correlation between internal and external marks. The correlation is also significant. The internal marks are not taken into consideration.

DISCUSSION

In B.Ed. and M.Sc. (Botany) and M.A. (English) courses there is high correlation between internal and external marks. Internal assessment has been developed as an integral part of the teaching-learning process. Periodical tests are held by the staff members. Students know well that their performance is taken into account. Under such circumstances the correlation is high and coefficient significant.

In the case of M.A. (English), even though the marks are not taken into consideration, still, there is correlation between internal and external marks, while in the case of M.A./M.Sc. Mathematics even though it is compulsory [illegible]

CONCLUSION

Therefore, wherever internal assessment has been developed as an integral part of the course and where students and staff take internal assessment seriously there is high correlation irrespective of whether such marks are taken into account or not.

These studies point out that internal assessment if properly developed is bound to lead to a stage, when we can do away with external examinations. However, certain conditions need to be fulfilled before this could be done.

1. Internal assessment should be developed as an integral part of the teaching-learning process in all colleges and postgraduate courses.
2. Each university should watch the progress of correlation between [illegible] years say 3-4 years. When [illegible] and when there is sufficient [illegible], the university may replace external examinations in its departments first.

3. Internal assessment should be made compulsory in all subjects in all affiliated colleges. The correlation between internal and external marks should be watched for 3-4 years. Steps as recommended by the Education Commission should be taken.
4. The UGC should establish an Examination Research Wing to watch and guide the activities of all universities in the examination reform.
5. Necessary facilities like liberal staffing of the departments and colleges orientation courses, discussions, seminars and workshops for staff members in universities and affiliated colleges on improvement of examinations, syllabuses, text-books, methods of teaching etc., should be simultaneously offered.
6. And, lastly a high sense of professional honour should be developed among all persons concerned with higher education.

Scheme for Internal Assessment

V. S. MISRA

FOR ALL PRACTICAL purposes we have now external assessment only, which is based on a student's performance at a particular moment of time on very inadequate sample of questions. Consequently, no generalisation about a student's competence can be made on the basis of external assessment. One way to improve the accuracy of assessment is to have internal assessment. This paper proposes a scheme for internal assessment in our universities. In making the proposal the author has heavily drawn upon the suggestions and research studies made in India.

PURPOSE

Internal assessment serves several purposes: It helps teachers and students to make the work-load even throughout the year. It gives them a periodical evidence to judge their achievements and failures. The teacher comes to know what topics he has taught successfully and what he has not. The student comes to know that he has learnt successfully and what he has [illegible] rs and students to improve [illegible] relative merits of their [illegible] nables the department to judge the effectiveness of its various programmes. It keeps the guardian informed of the progress and problems of his wards, so that he may render necessary help to them in time. In short, internal assessment helps all concerned with the education of a student to do their best to improve his level of achievement.

OBJECTIVES TO BE ASSESSED

It should measure students achievement in the objectives determined by the department. The objectives would not be only a list of [illegible]

taught, but also an outline of mental processes and behavioural activities desired to be developed by teaching the topics. For this purpose seminars of teachers, educationists and evaluation experts may be organised.

Meanwhile we may hypothesise various abilities, skills, etc., which university teaching should develop. We may expect that when our students enter life they will work hard, take right decisions, do and guide research and will be persuading conversationalists and convincing speakers. We may hypothesise the development of these abilities as the major objectives of university education. For taking right decisions, one should have up-to-date knowledge. The acquisition of knowledge should, therefore, also be an objective of education.

OBJECTIVES NOT TO BE ASSESSED

Certain educational objectives such as a student's personal qualities —sincerity, discipline, etc.—and the part played by him in extra-curricular activities should not be given weight in internal assessment. This does not mean that these objectives are not important. A department may give separate certificates showing achievements in these objectives. But to make the total of internal and external assessments more reliable only those objectives should be measured in internal assessment which are to be measured in external assessment.

VARIATION FROM ONE TO ANOTHER DEPARTMENT

The objectives of teaching may not be identical for all the departments. Thus, it seems desirable that the departments should be allowed some lattitude in the system of internal assessment. However, if some guidelines are not fixed by the university, each department may have its own system of internal assessment. In such case, internal assessment system may differ widely from department to department which may lead to complications. All the teachers with whom the present writer had an informal discussion on the point favoured the idea that some broad guidelines should be given by the university within which each department should do internal assessment and this seems to be a sound approach.

PRIVATE CANDIDATES

The problem of private candidates arises in some arts departments only. Most of the private candidates are such people who do not have time or money to have university education as a regular student. They prepare at home and a vast majority of them fail in the examination. To improve the achievements of private candidates some universities have recently started correspondence courses. Thus, it seems desirable that universities may extend the benefit of internal assessment to private candidates also as discussed later. This would help private candidates to improve, would reduce wastage in education and eliminate any chance of misunderstanding that private and regular candidates do not take the same examination. Private candidates should be required to appear for such assessment and bear the expenses.

MARKS OR GRADES

It is easier to classify students in a few (say, four or five) grades than awarding them marks on a continum ranging from 0 to 100 But award of marks in internal assessment seems desirable for the following reasons: (a) We are used to marking system. Thus, any change in the practice may [illegible] s are better description than grades of [illegible] (c) Marking system will make the com- [illegible]

only when both his mark and rank are known.

METHODS OF ASSESSMENT

(a) *Assignments and Tutorials*: Properly designed assignments and [illegible] e students to do hard [illegible] and develop the art [illegible] *Examination Reform* has recommended that "In order to make room for more tutorials, lectures may be cut down (it should be possible to reduce them by 50 per cent) and the teaching work divided between tutorials and lectures" But if assignments are not designed properly they may lose their educational value. To make the point clear: The assignment 'What are the various theories of learning?" may at best measure knowledge, provided the students have written the answer on their own. If they have simply copied the answer from books, it does not measure knowledge even To improve the assignment we may make a minor modification and ask the students to write "The influence of various theories of learning on the teaching-learning practices followed in the secondary schools of Assam". Assuming that it is a new question answer to which is neither available in any book nor has been taught in the class, we may expect that it will make students consult available books on Learning, comprehend the various theories of Learning, identify the teaching-learning practices followed in our secondary schools, relate theories to practices and draw inferences. Another purpose of assignments is to develop the art of good writing Coherent writing is not a spontaneous outflow of thoughts. It has to be learnt by practice; and assignments provide an opportunity to learn it.

Assignment needs to be thoroughly commented upon by the teacher. It may even be returned for re-writing. Finally, it has to be discussed in tutorials or seminars. To provide every student of the group an opportunity to speak, the number of students in the tutorials or seminars may be limited to ten. The number of assignments may differ according to the nature of the assignments. As a rough guide it may be suggested that assignments should keep students busy at home for at least six hours a day.

The inclusion of assignments and tutorials in internal assessment will, no doubt, make the assessment more comprehensive. But the factors, as detailed below, may lower the reliability of assignments:

First, assignments are written at home. When weight is given to them. some students who feel that they cannot get high marks by their own ability may be tempted to copy other's answers. In science department, where mostly problems and quizzes may be given in assignments, it will be difficult

to identify the one who has solved the problem himself and the another who has not. Second, in some department, assignments and tutorials may not work out satisfactorily due to a large number of students. Third, the number of tutorials is less for the present and it is probable that some students may not get an opportunity to speak throughout the year. Fourth, assignment markings have often been found to have a halo-effect, that is, while marking an assignment a teacher is often guided by the impression he has about the student rather than by the actual merit of the answer. This is on account of the weakness of the system and not of the teacher.

It is, therefore, suggested that for the present no weight be given to tutorials and assignments. However, a record of students' performances in assignments and tutorials be maintained. On the study of reliability and validity of these marks, the weights to be given to assignments and turorials may be determined.

(*b*) *Tests* : We may use essay-type tests, short-answer-type tests, objective tests and oral tests. To make the marking of essay-type tests reliable, it is desirable that every precaution to conceal the identity of the examinees is taken and each script is marked independently preferably by three teachers or at least by two teachers. When there is a large difference between the marks given to the same script by different teachers, the teachers may discuss with each other and reconcile the differences. This procedure will increase the reliability of marking, help teachers to improve setting questions, reduce subjectivity in marking and shield examiners from pressures or criticisms.

Objective and short-answer-type tests have several advantages over essay-type tests. They cover much more area than that covered by essay-type tests. They can be scored in short time. Marking reliability is very high for short-answer-type tests and almost perfect for objective-type tests even when they are marked by only one teacher. They are more effective than essay-type tests in diagnosing weak and strong points of students, because they can test several aspects of learning in a short time. In the U.S.A. objective tests are used with high proficiency up to the post-graduate level. There seems no reason why the same cannot be employed with advantage in India also. Every department may construct a pool of such tests. Oral tests have been found to be highly reliable and valid. Such tests provide an opportunity to students to speak out their understanding, contradict opposing ideas and support their own views. They give teachers an opportunity to judge intensively and extensively a student's achievement. Furthermore, they prepare students for future life where they may frequently be required to use this faculty. Research has shown that objective and oral tests are more valid than essay-type tests for predicting achievement even in essay-type tests. As such, we may use oral and objective tests in internal assessment, even when we use only essay-type tests in external assessment. Oral tests may be conducted by a board of teachers, of which the subject teacher must be the member. A major limitation of the oral tests is that if they are not conducted properly, some shy students may not do their best. It is expected that there would be no difficulty in conducting oral tests.

It is, therefore, suggested that at least two written and two oral tests evenly distributed over the academic year may be administered by each department. Private candidates may also be required to sit for these tests and bear the expenses involved.

(*c*) *Dissertation* : To make our students capable of doing and guiding research, it seems desirable that they should be given some practical training in research. A theoretical paper on Research Methodology and a practical work in the form of a research dissertation may probably offer a good opportunity to learn the techniques of research. It will help students to learn how to select a problem, use library, collect and analyse data, draw inference and draft a research report. This will also give them insight into the intricacies of research. The dissertation may be written in a two-year period under the guidance of a teacher. This may be of 200 marks of which 100 marks may be allotted for the written work and the remaining 100 marks for the viva-voce. The written work may be examined by two examiners—one external and the other internal who may preferably be the guide. Likewise, in the viva-voce there should be one external and one internal examiner. The average of the marks awarded by the two examiners in the written work and viva-voce may be given to the student. The same practice may be followed for private candidates also.

It is sometimes pointed out that a good research thesis requires at least two years full time work of a bright student. Since students do not have that much time to devote to research, their work may not be of the standard quality. The following is a suggestion to solve this problem,

A research work of doctoral standard requires both quantity and quality. For the purpose of the proposed dissertation we may insist on quality only. A department may make a long term plan of the research problems to be undertaken by its students. It may accordingly plan for the collection of the data by one or more students. Then each problem may be divided into various sub-problems. A student may be required to select one sub-problem (the same data may be analysed by several students, each finding solution to a specific problem), so that a dissertation within its limited scope is a standard work. This scheme may create a congenial atmosphere for co-operative research.

The students may be encouraged to write papers on the basis of their thesis. To provide incentive for further research and for information of other workers such papers may be got published in appropriate journals.

(*d*) *Experiments and practicals* : In certain departments some experiments are required to be done by students. The basic purpose of experiments is to educate students to test a hypothesis scientifically In practice, experiments are always prescribed and notes are available in the market which tell how tc [illegible]
practice. [illegible]
used, obse [illegible]
student wi [illegible]
trains the students to do the particular experiments, but does not necessarily educate them in the skill of framing hypotheses, designing experiments, and drawing inferences.

In some foreign universities there is no practice of prescribing in advance the experiments to be done. While discussing a topic in the class certain problems arise. The students frame their hypotheses and design their experiments In the beginning, sometimes the students find that the experiment does not answer the question they wanted it to answer. They wonder what went wrong, consult books and spent a restless night designing another experiment. The process continues till they get the right answer. Thus, the number and the problems of experiments may vary from year to

year, but by this process the students learn more in two or three experiments than what our students learn in a score of experiments. Such an approach to experiments may not seem feasible in our universities, but it is a possible direction to which we may move.

For practicals, internal assessment is already there in almost all the universities. To give the student and the guardian an idea of how well the student is progressing, the assessments may be made on a terminal basis. We may have three or four such terms.

WEIGHT FOR INTERNAL ASSESSMENT

The determination of the weight depends upon the efficiency of internal assessment. However, in the beginning it seems desirable to make a humble start with 25% marks for internal assessment in each theory paper. After the initial difficulties are overcome the weight may be progressively raised to 50%. For research dissertation 50% marks may be allotted to internal assessment in the manner already stated.

RECORDS FOR INTERNAL ASSESSMENT

Recording of internal assessment marks should be made as simple as possible. The head of the department may maintain the record of internal assessment. The subject teacher will enter periodically internal assessment marks. After the year-end a copy of the internal assessment record should be sent to the university.

USE OF INTERNAL ASSESSMENT

The student should be informed of his results. His strong and weak points are to be explained to him with special reference to his answers. Necessary suggestions for his further improvement may also be given to him. The progress of the student should be informed to the guardian also.

It may be stated that the same report need not necessarily be sent to every one. For instance, the guardian should be informed of the progress and problem of the student and others of the capability of the student.

COMBINING INTERNAL AND EXTERNAL ASSESSMENT MARKS

This seems to be the major problems confronting the agencies which introduced internal assessment.

We do not add arithmetically 40 yards and 44 metres as 84. The two figures are converted to a common scale before they are added. The procedure of converting examination marks to a common scale is technically called "scaling".

The need of scaling arises when the distribution of marks given in internal assessment differs beyond a reasonable limit from that given in external assessment. If the difference is within a reasonable limit there is no need of scaling. A method of scaling which takes into account the means and s.d. should be used to scale internal assessment marks to the distribution of external assessment marks before the two are added. In the Gauhati University we do this by drawing cumulative frequency graphs for (1) the external

assessment marks and (2) the internal assessment marks on the same graph sheet. The scaled internal assessment marks are then read by drawing a horizontal line across the two graphs. [Fig. 1 illustrates the point. In Fig 1, graph A represents cumulative frequencies on external assessment, graph B on internal assessment. For both the graphs the number of students is the same, *i.e.*, 50.] Suppose a student has got 30 marks in external assessment and 60 marks in internal assessment We first scale internal assessment marks to external assessment marks distribution by drawing a horizontal line across the two graphs. The horizontal line which starts from 60 marks on graph B cuts graph A at 40 marks. So 40 marks are his scaled marks on internal assessment. His external assessment marks, as already stated, are 30; so his total marks are 40+30=70. Another method of scaling we could adopt is to ask the college to give ranks in internal assessment. The ranks are then statistically scaled on the basis of the distribution of scores given to the group in external assessment Another method could be the use of a link test. This may be used where both internal and external assessments are based on the written performance of the students. The link test could be of the objective-type. Since the link test is to determine the range of scores of the students, its reliability need not be very high. A 30-minute test may do. The internal assessment marks may then be scaled to the range suggested by the link test.

RESEARCH TO IMPROVE EFFICIENCY OF INTERNAL ASSESSMENT

Various methods for internal assessment have already been suggested The efficiency of these, separately and combined together and suggestions for improvements, if any, needs to be determined by research.

In the end it may be stated that emphasis on internal assessment does not imply undermining the importance of external assessment. External assessments are as important as internal assessment and they also need further improvements.

Before concluding this paper, we want to repeat that no appreciable reform in examinations is possible unless the teachers engaged in the examination have some ideas of the theories and practices of educational measurement. It is, therefore, necessary that some programme for training of university teachers in Educational Measurement be undertaken by some central agencies.

10. The period of training required and the finance required necessary for an adequate programme to provide an orientation toward the new concept of evaluation.

Internal assessment in Indian Universities: The main features in the introduction of internal assessment in Indian universities are:

1. To include internal assessment in the total evaluation procedure by fixing the weightage to be allotted. The usual practice is to allot twenty per cent for internal assessment. This proportion is very small when we consider the number of objectives covered by assessment.
2. To employ the same methods of assessment for both internal and external assessment, thus defeating the very purpose of internal assessment. The same objectives would be repeatedly assessed and a large number would not be included in the assessment.
3. To depend on external assessment for the main purpose of evaluation, *i.e.*, maintenance and levelling of standards, selection of students for higher levels of education and various occupations, for predicting future achievement and for linking education, economy and society. This approach takes away the very basis for the introduction of internal assessment and prevents the wider use of internal assessment.

EXTERNAL ASSESSMENT

External assessment is adopted by universities for the purpose of:

1. maintaining uniformity of standards of evaluation procedures over a large number of institutions.
2. Maintaining academic standards when a large number of institutions are involved.

The main characteristic of this form of examination is that it is conducted by an external agency and involves people who have not been directly involved in the process of teaching those who are being assessed. The following characteristics arise out of the first:

(*a*) Due to practical difficulties external examination is usually confined to tests conducted at fixed intervals of time. The assessment is therefore not continuous.

(*b*) As a consequence the number of testing situations and the types of testing situations are limited in number.

(*c*) Practical skills and abilities and the development possible in several areas cannot be assessed through external tests.

(*d*) The number and type of tests that can be used in external assessment are very small in number.

All these characteristics combine to result in a very serious limitation for external assessment—the number of objectives that are measured are usually very few. The less tangible objectives are often conveniently ignored. In addition to this limitation there are also several other defects, which are caused by the particular form of external examination adopted in our universities. The main defects are:

1. Confinement of assessment to mainly one objective of education.

2. Prevention of raising of standards.
3. Dependence on the essay type of test
4. Defects in the questions included.
5. Inclusion of optional questions
6. Subjectivity of answers, lack of scoring economy and scorer unreliability.
7. Arbitrary allotment of marks for questions.
8. Decision of pass minimum with no reference to difficulty level of question paper.
9. Undesirable influence on teaching learning process

Practical examinations at all levels of university education and oral tests at the masters level and in professional courses have been introduced to overcome some of the defects of the written examination

The acceptance of the defects in the present system of external examination conducted by our universities and the awareness of the importance of internal assessment have together focussed attention on the need for the introduction of a pattern of evaluation which is more comprehensive and includes both forms of assessment, not as alternate forms but as complementary ones.

CORRELATION BETWEEN INTERNAL AND EXTERNAL ASSESSMENTS

Research has been conducted mainly at the secondary school level to

meant to complement each other and not to validate one another. (4) The standards of attainment and interpretation of achievement are not similar

It is felt that a more fruitful direction of research would be (1) to correlate the results of external and internal assessments only with the results arrived at by combining the two assessments. (2) to carry out prediction studies based on the results of a combination of methods

cation. (2) External examinations cannot and should not be dropped completely. (3) Internal assessment has a role to play which is quite different but in no way less important than the external examinations. (4) A combination of internal and external assessment is the best method of evaluation

The attempt to implement a comprehensive programme of evaluation including both internal and external assessment involves the solving of several problems. (1) The role of examinations in relation to objectives of education has to be clearly understood. (2) The proportion of weightage to be allotted to the two types of assessment will require a decision. A rigid imposition of an arbitrary proportion cannot be accepted. The requirements of a particular course should decide this proportion. (3) Internal assessment scores should not be totalled with external assessment scores if

the purposes of both have to be served. The two scores which measure different things should be treated separately and interpreted in relation to specific needs. (4) The teaching within the classroom has to be oriented towards both types of assessment. (5) Assessment can no longer be confined to the classroom. (6) The professional competency of all the involved personnel with respect to evaluation has to be assured. (7) The users of the products of education have to be enlightened on the new concept of evaluation. (8) The need for the use of a large number and types of techniques and tools of evaluation has to be met.

The effectiveness of this process of evaluation however depends upon (1) the professional integrity and competence of the teahers involved, (2) continuous research into evaluation practices, (3) an effective follow-up programme of students and (4) an accredition system of institutions.

Once the need for the modification of the present examination system to make it more comprehensive through the adoption of both internal and external assessment is accepted universities can take the following steps:

1. The present system of external examination conducted by universities can be improved by :

(*a*) Raising the standard of the question paper.

(*b*) Increasing the reliability and validity of the essay question.

(*c*) Including objective and short answer items in addition to the essay.

(*d*) Providing adequate training for paper setters so that the quality of the questions are raised.

(*e*) Decreasing inter scorer unreliability through meetings and specific directions.

(*f*) Using computers for the scoring of objective tests to lessen the work of examiners.

(*g*) Using standardised tests wherever possible.

2. The present system of internal assessment has to be changed.

(*a*) Internal assessment has to be made continuous over a long period of time.

(*b*) The teachers involved have to possess the necessary knowledge and skills.

(*c*) The necessary tools have to be provided.

(*d*) The work schedules of the teachers and the teacher pupil ratio have to be modified.

(*e*) The size of the classrooms has to be made small.

(*f*) The subjective element of internal assessment has to be accepted and used for the improvement of evaluation.

3. An evaluation cell can be established in every university with the following purposes:

(*a*) Conduct external examinations.

(*b*) Facilitate the work of internal assessment.

(*c*) Carry out research on all aspect of evaluation

The work of the evaluation cell will include:

(*a*) The preparation, testing and compiling of test items

(*b*) Preparation of tools for internal assessment

(*c*) Provide training to college teachers in evaluation

(*d*) Carry on research studies—prediction and correlation.

The teaching staff of the departments involved in the theory and practic of evaluation can be incharge of the evaluation cell.

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Checking of Marks and Answer Scripts

V. S. MISRA

As a student's merit is judged by his marks, every step should be taken to check accuracy of marking. While checking of marks is a routine for objective tests, it becomes difficult for essay tests due to subjectivity of examiners. Thus the first step to ensure effective checking is to minimise the elements of subjectivity.

SUGGESTIONS TO MINIMISE SUBJECTIVITY

(i) *Introduction of objective items* : Most objectives measured by traditional tests can be better measured by objective items. This is the reason why the leading examination agencies in the U.S.A. have switched over to objective tests. Unfortunately in India the potentials of objective tests have not been fully explored. A pioneer study done by the present author suggested that almost all the questions asked in Geography in Class X final examination of a Board of Secondary Education could be converted to objective items. The questions that may be made objective should be tested through objective items. For Technical reasons objective tests should be administered separately. Checking of marks for objective tests would be accurate, speedy, and economical.

(ii) *Specificity in questions* : The instructions should be so specific that there is no room for different interpretations as to what *is* and what *is not* to be looked for in the answer, and what credit would be given to different aspects of the answer. To illustrate the point, we reproduce a typical question asked in a university examination: "Write all that you know about Azealea Adair and............" Obviously the question does not specify what level of proficiency is expected from students and how the answers are to be marked. We give below a few formats in which the same question could be asked more precisely :

FORMAT A. If the paper-setter wanted to measure only knowledge of the students about Azealea Adair, as the question seems to suggest, an objective question like the following could be most useful.

Q. Who was Azealea Adair?

1. Lawyer,
2. Trader,
3. Writer,
4. Teacher, and
5. Doctor.

Similar questions could be asked to cover other salient points about Azalea Adair.

FORMAT B. If the paper-setter aimed at measuring students' knowledge expressed in their own words, short answer questions like the following could be better

Q. Where did Azealea Adair live? 1
(around ten words)
How was Azealea Adair related to Caiser and Caswell?
(around fifteen words) 1+1
Why did the writer see Azealea Adair? 4
(around ten words)

FORMAT C If we want to measure student's ability of interpretation of facts and organisation of ideas as expressed through written language, questions like the following could be better:

Who was Azealea Adair? (around ten words) 1
Is Azealea Adair a major or a minor character?
(around ten words) 1
Why do you think so? (around fifty words) 2+3
(2 marks for facts and 3 marks for logical organisation of ideas)

(iii) *Provision of check lists* : Examiners should be provided with a check list. A difficulty in preparing the check list is that some points considered important by one may not be considered so by another. It thus seems desirable to prepare the check list after consulting the paper-setter and all the examiners. If it is not possible, the paper-setter and the head examiner should independently prepare separate check lists. The final check list should include only those points which are common to both the check lists. For Format C something like the following could be used as the check list:

The answer should include that Azalea Adair was a *writer*. She is a *major* character in the story. The reasons for considering her so should include 1............ 2. .... Each of the two reasons is to be given one mark Three marks are reserved for logical organisation of ideas.

It is still better if the examiners are also provided with several answer scripts each representing a typical distinction, first division, second, third and fail levels Harper in a personal communication has informed the present author that this is done in Hongkong by photo-offset reproduction of typical scripts selected by the head examiner.

(IV) *Use of different signs to indicate different types of errors* : In scoring objective tests, some people use specific signs to indicate different types of errors. This helps in analysing various types of errors committed by students. This method may be adopted for essay tests to facilitate cheking of marks. To illustrate, we may ask examiners to cross spellings; strike out errors of ommission or commission in punctuations; underline a wrong construction of sentence; and add separately (*e.g.* +1½) marks awarded for coherence of ideas.

CHECKING OF MARKS

(1) *By the Head Examiner* : In some Universities all the examiners work at one place under the close supervision of the head examiner. This practice has the advantage that communication between the head examiner and the examiners become prompt. This meeting should first review the check list and marking instructions, and make amendments in them if needed. After marking starts the head examiner should check a few scripts selected at random from the marked scripts of every examiner to ensure that the scripts are marked accurately. If there is a ground to believe that marking of an examiner is not accurate, all the already examined scripts of that examiner should be re-examined.

In some universities the head examiner and the examiners work at different places. If the period allotted for examining the scripts is such that the head examiner may get a few examined scripts from every examiner and return them in time with his comments, he should do it. When it is not possible he should check a random selection of scripts after the scripts are returned from the examiners. If he feels that the scripts of a particular examiner are not accurately marked, all the scripts marked by that examiner should be re-examined.

(2) *By the Scrutinizers* : After the head examiner has made a sample checking of scripts, the scripts should be passed on to the scrutinizers, who should check all the scripts for the mechanical part of scoring. Such cases where an answer is left unmarked should be brought to the notice of the head examiner, who should examine himself the question left unexamined. Where an answer has been doubly marked or totals are incorrect, this can be corrected by the scrutinizers.

PENALTY FOR FAULTY MARKING

Examining like shooting is a skill. Faulty marking does not necessarily suggest lack of sincerity. It is therefore suggested that for faulty marking no further action than debarring the examiner from examinership for a specified period should be taken. However, for careless marking a deterrent punishment may be desirable.

RE-SCRUTINY OF RESULTS

After the publication of results if a candidate wants his marks to be checked again, this may be done on the realization of the prescribed fee. This time the scripts should be scrutinized by some other scrutinizer. If the re-scrutiny reveals any discrepancy the results should be modified accordingly.

Scrutiny of Answers

V. N. PANDIT

THERE IS NOBODY who is infallible and valuers are not an exception to this rule. Mistakes committed in some other fields can be corrected and the damage caused can be repaired; but when an answer-book is valued and the results are declared on the basis of that valuation, an error in the marks allotted can be detected only if a candidate applies for re-totalling of his [illegible] over, the result [illegible] of finality. If an [illegible] gent examiner he remains a victim of that irreparable harm throughout his life and worse till the student knows not that he has suffered and the examiner knows not that he has caused the suffering.

Immediately after taking over as the Vice-Chancellor of Nagpur University in March 1966, Dr. V. B. Kolte decided to remove this defect in the system of declaration of results and established a small section in the University administration which was called the Pre-tabulation Scrutiny of Answer-books. I have been associated with the University in this work till 1970. My observations given below are based on the work I did for the last five years.

There were many types of mistakes committed by valuers—*e g.*—(1) Marks given to a question inside did not tally with those written against that question on the cover page. (2) Total of marks for the answer-book was wrong. (3) Wrong posting of marks *i e.*, marks awarded to a question inside were written against a different question on the cover page. (4) Marks entered in words on the cover page were not the same as those in figures. (5) An answer or answers were left unvalued. (6) An excess answer was valued. (7) Even when nothing was written by the candidate, marks were allotted to blank pages. (8) Marks were awarded to stupid statem [illegible] "Sir, be kind to me and give me pass marks". (9) Mar[illegible]

answer were more than the maximum allotted to it by the setter. (10) Even when the candidate answered all questions, marks given to some were not entered on the cover page. (11) While entering the marks in the foils and counter foils they were written against wrong roll numbers. (12) Marks entered in foils and counter foils were wrong. (13) Marks awarded to a candidate on the answer-book were not entered at all in foils and counter foils. (14) Roll numbers or enrolment numbers were not written or were wrongly written in foils and counterfoils. (15) Foils were prepred but counter foils were not. (16) Alterations were done without signature. (17) Answer-books were not signed.

There were two categories of persons entrusted with this work: (*i*) checkers, and (*ii*) scrutiny officers. The checker's job was to spot all mistakes committed by a valuer but they were not authorised to make any changes in the marks awarded by him. They were to note all these mistakes and bring those answer-books and documents to the scrutiny officer who was empowered to change the marks or effect any other corrections after he was thoroughly satisfied that it was necessary to do so. A script containing an unvalued answer was sent to the concerned valuer and he was requested to value it. The foils and counterfoils were sent to the tabulators only after all these mistakes were corrected to the satisfaction of the Scrutiny Officer.

Checkers were selected from amongst men and women lecturers and school teachers, and professors with considerable experience of compiling University results were appointed as scrutiny officers. But the most important criterion for the selection of the above mentioned persons was their honesty, integrity and zeal for doing the work with a conviction that they were doing something which would do justice to students. A scrutiny officer, possessing a little less integrity, would be a curse to the whole project as he could alter the original marks under his signature or point out the mistakes of some valuers and hide those of others. The job had to be done without fear or favour as the valuers included men and women of outstanding merit and occupied eminent positions in many universities. But it was carried out impartially and without the least regard for consequences. I had to be very careful, especially when an answer-book was to be sent to an examiner because an answer was left unvalued by him. There were various types of reactions. A few samples are given below.

(*i*) I am very sorry for the mistake. Thank you for pointing it out. It has now been corrected.

(*ii*) I have been an examiner for the last so many years but this is the first time that such a mistake has been brought to my notice. I am grateful to the Nagpur University.

(*iii*) The answer deserved zero because it is utter trash, I did not think it necessary to write zero.

(*iv*) I had already valued the answer before. The University is wrong in charging me that I left it unvalued.

(*v*) The answer-book did not originally pertain the portion reported to have been left unvalued by me. It must have been inserted there *after* I sent the packet to the University. It is a deliberate attempt to bring a bad name to valuers.

Proportionate deductions were made from the remuneration bills of the valuers and when they found that substantial amount was sliced off their claims, they were naturally perturbed and, in some cases, angry with what

they thought was an unjustified accusation. Many came to the University office protesting vehemently that they could never have committed such mistakes, at any rate not in such large numbers, and the scrutiny officer must have committed a mistake himself. In such cases the record of their errors and the answer books valued by them were placed before them for their perusal. I am proud to say that till this day the University did not have to retract its decision even in one case. As we proceeded with the work in successive years, those who came protesting, went away acquiescing. And since last year there is hardly anybody who protests.

Since the University introduced this novel system, novel for it at any rate, for the first time in 1966, there was a great deal of curiosity and not a little scepticism generated in the minds of many persons. The Press also evinced great interest in it. I give below an excerpt from the "Current Topics" of the Times of India dated the 13th June 1966

LAX EXAMINERS

"The system of individual checking of answer papers introduced by Nagpur University and adopted successfully by some other universities has several advantages. It reduces the margin of probable error to the minimum, helps to bring to light lapses on the part of examiners, and guarantees that a paper is assessed in its totality

In Nagpur, in 250,000 answer papers as many as 3,500 errors were detected Some of these errors were mistakes in totalling which is understandable, if also indefensible. What is astonishing is that as many as 200 answers were not assessed at all. Apparently, in one case, out of 10 questions answered, only six were assessed. Such laxity by examiners is inexcusable if only because their carelessness can seriously affect a student's career. If individual checking makes examiners more vigilant and conscientious that alone would indeed be a great gain."

Answer books of technical examinations posed peculiar problems. They have two parts of a question paper, each of which had to be answered in a separate answer book. Many students wrote the answers for both parts in one answer-book, intermixed the answers or wrote them in wrong answer-books. These had to be sent to the proper valuers, as the examiners to whom these answer books were sent initially, rightly left some answers unvalued, if they were to be seen by somebody else. What would have been the fate of these students in the absence of this scrutiny?

The ratio of unvalued answers in 1967 was 1 in 1295 answer books, in 1968, 1 in 1071, in 1969, 1 in 969 and in 1970, 1 in 945. This means that the tendency to leave answers unvalued is on the increase as is the case with errors of other types.

During the last five years the University has trained nearly 200 reliable checkers and 7 scrutiny officers who could be called upon to do this work any time. In 1970 the maximum number of checkers and scrutiny officers at a time was 64 and 6 respectively. In previous years also, in the peak period, their number used to be more or less the same.

One checker turned over nearly 300-350 answer-books a day between 11 A.M. to 5 P.M. The scrutiny officer and other staff stayed on up to 6.30 P.M. to wind up the day's work The limit for each checker was 5000 answer-books. The rate of payment was Rs. 35/- for 1000 answer-

books. The scrutiny officer was paid @ Rs. 15/- per day and the Chief Scrutiny Officer @ Rs. 20/- per day. The University incurs an expenditure of about Rs. 19,250·00 per year for this scrutiny.

It would be interesting to see the amount of money deducted from the examiners' bills on account of their mistakes. If 1970 is taken as a representative year, the figures are:

2,800 major errors which altered the totals—punishable

@ Rs. 3/- per error — Rs. 8,400·00

2,616 minor errors which did not affect the totals—

punishable @ Rs. 1/- — Rs. 2,616.00

(Total of minor errors was 4633 but the Vice-Chancellor ruled that 2017 errors of wrong posting need not be penalised though they would be regarded as errors for other purposes *e.g.* debarring an examiner from being given further valuation.)

419 Unvalued answers—penalty Rs. 10/- per answer

Rs. 4,190·00

Total Rs. 15,206·00

It is not my intention to show that the amount spent on the scrutiny is partially or substantially recovered through the amount collected as a result of penalties levied. On the contrary the Univesity would be very happy if no errors are committed and consequentially no part of expenditure is recovered. Indeed, the Vice-Chancellor is anxiously awaiting the day on which, as a result of this report, the valuers do their duty of valuing answer-books so well as to render their scrutiny superfluous. But till that stage is reached it has to be an essential part of the examination system.

It is likely that some may try to minimise the gravity of the situation by saying that in 1970 the proportion of errors, major as we called them, comes to only 1 in 141 answer-books or by arguing that only 419 answers were left unvalued in 3,96,071 scripts. But this is a wrong approach. Human life and the career of a young boy are not mere economic commodities whose waste is pardonable as that of some material in an economic enterprise. It is too precious to be wasted and hence must be treated with the utmost care. The trust that the students place in the University must be fully justified and to ensure that no injustice is done even to a single student, neither any labour, nor any expenditure is too much.

The benefits conferred on students by this scrutiny are too obvious to need emphasis or repetition. What is needed is a little bit of introspection on the part of valuers. Why do they commit so many mistakes that could be avoided by them if they were careful? Do they not realise that the future of young and hopeful boys and girls lies in their hands? The University has ruled that if an examiner commits 4 or more mistakes, not only should the usual penalty be levied against them but he should be debarred from being a valuer at the next examination. In some cases he is not given valuation for a number of years if he commits an inexcusably large number of mistakes. This is a big penalty for anybody. And yet the proportion of mistakes is rising every year. Have the professors grown impervious to this punishment and loss of face? Probably they think, in a mood of philoso-

phical resignation, that things in general and human nature in particular cannot be altered, as expressed in a Chinese proverb·

"The legs of a table are short,
 we cannot make them long.
The legs of a stork are long,
 we cannot make them short.
So why worry?"

Practical Examination in Science Subjects

R. K. MAPARA

MODERNISATION AND REORIENTATION OF SYLLABI

IT HAS BEEN observed that during daily practicals, students perform experiments mechanically. The experiments prescribed at present in different science subjects bear little relation to modern scientific techniques. In order to impart a fresh out-look to techniques of teaching and learning practicals in science subjects, students should be induced to build up their own apparatus and to improvise their own methods to develop greater experimental skill.

In view of recent developments in scientific techniques, since 1956, Sardar Patel University (Anand) and since 1968, the other three Universities of Gujarat have commenced progressive modernisation and reorientation of the syllabi in theory and practicals of various science subjects.

EVALUATION

In practicals, students' performance should be evaluated by (i) the continual assessment during the course of a year, (ii) periodical tests and (iii) final university examination. Proportional weightage should be given to the continual assessment, periodical tests and final practical examination.

It has been observed that the final results in practicals are considerably affected by the varied evaluation at the university examination.

UNRELIABILITY OF FINAL ASSESSMENT

Scrutiny of the results of the last some years of Gujarat University and South Gujarat University has revealed that a number of students, who

[illegible]

(1) [illegible] a considerable influence on the assessment in practical examination.

(2) Disparity in the nature of various experiments given to different students of the same batch or different batches.

(3) The present stereotyped nature of syllabi in Chemistry practicals and practical exercises set at the final university examinations. Experiments, which develop creative ability and experimental technique of students are hardly set at the university examination at the undergraduate level.

(4) In Physics, Botany and Zoology practical examination, marks are assigned to the written part and the non-written part. Assessment of the non-written part depends upon the sincerity and vagaries of an examiner. It also depends upon the number of students to be examined by an examiner in a day.

(5) Detailed scheme of marking does not seem to be followed sincerely and rigidly by some examiners

SUGGESTIONS FOR IMPROVEMENT

The above-mentioned defects in the assessment of practical examination can be rectified by taking the following steps :

(1) The Board of Studies in each science subject should define the objectives of performing various experiments.

(2) The syllabi in practicals should be framed, keeping these objectives in view.

(3) The Board should unambiguously set up a detailed scheme of assessment for each experiment of the syllabus.

(4) The scheme of assessment should be in conformity with the objectives to be tested.

(5) Whenever there is a change in the syllabus, work-shops should be organised to discuss details regarding the internal as well as external assessments of all the experiments prescribed in the new syllabus.

(6) A meeting of all the examiners at the practical examination should be arranged by the head-examiner to discuss fully the scheme of marking for the written and the non-written parts of all the practical exercises to be set at an examination

Practical Examinations and Viva Voce

K. V. RAMANAN

INTRODUCTION

'NOTHING IS MORE revealing of the purpose underlying a course of study than the nature of the examinations given at its close. Nothing is more effective in telling the student what we want him to do than the method we take of finding out whether or not and how well he has done it.'

The above statement of the objective of examinations has not so far been truly applicable to the type of practical and viva-voce examinations held in colleges. Some of the important factors which need to be considered in judging the quality of a test are :

1. Relevance,
2. Balance,
3. Efficiency,
4. Objectivity.
5. Specificity,
6. Difficulty,
7. Discrimination,
8. Reliability,
9. Fairness,
10. Speediness.

The current modes of laboratory and viva-voce examinations are inefficient and have failed to serve the real purpose. Since inefficient examining cannot contribute to good training of the student, the only course an examining body can properly take is to strive continually to improve its examinations so that they give the maximum support to good training.

CURRENT MODES OF PRACTICAL AND VIVA-VOCE EXAMINATIONS

Owing to the large number of students to be examined in a limited time period, most of the laboratory examinations are conducted in a manner which does not really test the experimental skill acquired by the candidate The existing modes of laboratory examinations can be broadly categorised as follows :

CATEGORY 1

About 10 to 15 students are examined in each batch for laboratory examination for a definite time duration ranging from two to three hours. The examination board consisting of one external and one internal examiner sets a fixed number of laboratory test questions. These questions are repeated for each batch, with minor variations of data whenever feasible

During the time the students are busy with their experimental work, the examiners go around for examining each candidate orally. A few disconnected questions on several topics are asked of each candidate without giving adequate time for the student to think and answer. The assessment in viva-voce is usually based on the number of correct answers, given by the candidate.

The overall performance is judged by summing the performances of the candidate in (a) laboratory report, (b) final practical examination, and (c) viva-voce.

CATEGORY 2

In some practical examinations, the lack of adequate laboratory equipment has led to the following practice :

The candidates are asked to write down individually detailed experimental set up, experimental procedure and method of calculation from observations. After the approval of the above by the examiners the candidates are asked to do the experiment in groups *viz.* 2 or 3 students are asked to do the same experiment. They are then asked to calculate the required data from the same set of common observations.

CATEGORY 3

The lack of adequate laboratory facilities has also led to a third interesting practice wherein the candidate is not required to carry out any practicals. The board of examiners assesses his laboratory reports and the viva-voce is conducted by the same board. The assessment in this case is based on the candidate's performance in his sessionals and viva-voce.

CRITICAL STUDY OF THE CURRENT PRACTICE

Let us critically examine the effectiveness of the current system of practical examinations.

If a test is to be relevant, the type of questions should be such that it will measure the desired achieveme[illegible]
a student in experimental skill and [illegible]
an awareness of error magnitudes [illegible]

up and apparatus used. If a laboratory test is to serve as an achievement test, the present practice of asking the candidates to repeat same experiments and same set of observations as obtained by him earlier in the course should be discarded.

A test should also be balanced so that each aspect of achievement of the student is given a proper weightage. The present system is highly unbalanced as too much weightage is given to the laboratory reports in the assessment. In mass education, the reports tend to the verbatim reproductions of a few master reports, and in cases of laboratory courses where new innovative changes in experiments are not carried out, the reports are copied verbatim by several generations. Undue emphasis on laboratory report writing in stereotyped form has led to a situation where the student is tempted to spend an undue proportion of his study hours in mechanically writing laboratory reports running into pages.

If a large group is to be tested in viva-voce oral repetition of the same few basic questions to each candidate by the examiners is a highly inefficient way of conducting a test. Instead, a common written quizz is more efficient for this purpose. This will also ensure objectivity and specificity of the questions.

A test is considered to be appropriate in difficulty if the mean score on it is about midway between the maximum possible score and the expected chance score. In the present day laboratory examinations, the score does not cover a wide range—for example the range of marks is usually between 50% to 90%—sometimes even 60 to 90%. This is due to the fact that sessional marks for the year are mostly awarded on the basis of the written laboratory reports. Not much distinction can be brought out between excellent and poor students in such an assessment and hence the range of marks is narrow on the 100 point scale. If the test is to be effective and reliable, it should be made more difficult. Only then there will be discrimination between good and poor students.

A test is said to be fair to the extent that it actually demands of students the command of knowledge that the course was intended to develop. Hence a proper emphasis on examining the practical skill acquired is necessary.

While speed is important in repetitive and clerical type operation, it is much less important in critical or creative thinking or in decision making. The fact that good students tend to be quicker than poor students is not in itself a sufficient reason for penalising the occasional good but slow student. The student's score should depend more on what he can do than on how fast he can do it. This criteria is very valid for a laboratory examination or viva-voce. Hence the present mode of blindly asking a student to clear out of the laboratory at the end of a specified period of time has to be modified. Also the tendency to assume complete ignorance on the part of a student who is unable to give sharp answers readily for the disconnected questions which the examiner shoots off at random and the consequential practice of awarding zero credit in viva-voce for such a student should be given up.

To summarise, the validity of the practical examination and viva-voce as conducted today is questionable as it fails to measure what its title suggests that it measures.

The following suggestions are worth serious consideration if the tests in laboratory courses are to be valid and reliable :

1. There should be regular and continuous assessment of the progress of the student in the laboratory courses. This can be done effectively if the instructor goes around and watches the performance of the experiments by the students. The instructor should also put a few relevant queries to the student while he is carrying out the experiment. Viva-voce for a few minutes should become a normal feature of each laboratory session.

2. There should be drastic modification in the mode of presentation of laboratory reports. Unnecessary repetition of text-book matter, description of the procedure and theory should be eliminated. Prepared rep[illegible]
cyc[illegible]
of[illegible]
the same day as they are turned in, so that the student can be informed [illegible]
ced valuation of the reports.

3. There should be periodic written quizzes based on the experiments carried out by the students. This will minimise errors due to subjective assessment of the candidates in a viva-voce

In a viva-voce, there is the possibility of the same set of questions being put to students of different batches. This leads to an unfair assessment as the candidates examined in batches subsequent to the first one have an advantage. A common written quiz avoids this difficulty.

4. The final laboratory examination should be conducted in such a way that each student will be given an individual opportunity to show his experimental skill. The questions set for the practical examination should not be mere repetition of the experiments conducted in the course. They should be set such that they test the skill and the understanding of the principles of the measurement and the experiment. The experimental question need not be a long one, but it should be of such a nature as to test the achievement of the student in the laboratory course. There can be a comprehensive written quiz for all the students. One should try to avoid duplication in the experiments set up for the different batches, though this may involve more time in the preparation of questions. Innovative changes in the practical questions are possible without requiring entirely different experimental set up

5. The viva-voce should be conducted after the student finishes his observations so that he is in proper mental state for creative thinking The viva-voce can be allowed to spill over beyond the set time-limit for taking the observations. If the student is unable to answer any question, leading questions should be asked to test his thinking power and his basic knowledge of the subject. Random questions lead to greater nervousness on the part of the candidate and a fair assessment is not possible Hence the viva-voce should be conducted in such a manner that it will try to probe what he knows rather than what he doesn't.

6. There should be a proper weightage for each component of the practical examination. A suggested weightage is given below :

Continuous assessment based on students' initiative, skills, reports and quizzes	60 per cent
Final laboratory examination :	
(*i*) Methodology	20 per cent
(*ii*) Results	10 per cent
(*iii*) Viva-voce and quiz	10 per cent

CONCLUSION

As the present mode of assessment of laboratory courses suffers from a series of limitations affecting the validity and relevance of the laboratory examination a more broad-based and objective type of assessment has to be introduced without delay.

This can be achieved without much difficulty even within the existing framework of internal-cum-external assessment.

Scaling and Grades

A.E.T BARROW

THE SANCTITY OF RAW MARKS

THE MYTH OF the omniscience of the numerical marks awarded by examiners is nurtured in India and this sanctity accorded to raw marks is one of the main hurdles in the reform of the examination system

An illustration of this is quoted from the" "Statesman" of 26 September 1970.

"THE ONE ON TOP"

"The————————Board of Secondary Education has upgraded a successful student, who stood second in the final examination, to first position, reports PTI.

The Board amended the original 50-name merit list of the March 1970 examination, declaring————of————School at——— to have secured the first position

The amendment followed detection of an error of only one mark, on a request for verification by————, in the total secured by him in Sanskrit. This increased his percentage from 87.13 to 87.25 — 0.11% more than that of————of————, who had topped the original merit list."

0.11% more than the next candidate—incredible ! Yet, this form of absolute worship of marks of examiners in India is 'absolute'

The above quotation is not meant to be a criticism of any particular examining board, but a criticism of the present system.

CHARACTERISTICS OF A GOOD EXAMINATION : RELIABILITY AND VALIDITY

Studies of the reliability of traditional examinations have been con-

(*The Reliability of Examinations*—University of London Press, 1932) and of Hartog and Rhodes (*An Examination of Examinations*, 1936) brought into prominence the major defects of marks of examiners. They highlighted the need for reliable and valid examinations.

The disturbing facts revealed, by the enquiries mentioned above, led also to efforts to try and improve and reform the traditional type of examination.

The main characteristics of a good examination are *reliability* and *validity*. Reliability can best be defined as *consistency*. An instrument that measures consistently is reliable. Thus, taking an example from ordinary life, a tape measure as a means of measuring length or height is obviously a more *reliable* instrument than a piece of elastic. *Validity* is best defined as "the extent to which a test or examination does what it is designed to do."

The concepts of reliability and validity will become clear if the relationship between them is illustrated.

A test can be perfectly *reliable* and yet *invalid*. Thus, for instance, if English Composition is marked by the number of words written the measuring instrument would be perfectly *reliable* but the purpose of the examination namely, to assess linguistic ability, communication of adequate and relevant ideas and clear and appropriate arrangement of subject matter, would not be achieved and, therefore, the examination would not be *valid*. In designing an examination, therefore, emphasis must not be laid on *reliability* to the deteriment of the *validity* of the examination. The problem, therefore, of ensuring the reliability of an examination and not affecting its validity must be the main pre-occupation of examination reform.

India is moving from the stage of an educated elite towards that of an educated society and there is no force which can prevent this democratic movement. The explosion of numbers in our examination system is a stark fact. Reform, therefore, in the system of examinations must be based on the increasing use of statistical methods. As far back as 1962 a Committee of the University Grants Commission in their report on Examination Reforms recommended :—

> "The present methods of marking examination scripts and of combining and tabulating marks in university examinations without reference to recognised statistical procedures are not satisfactory. The procedures will have to be developed to make marking and combining of marks more objective."

Two problems are thus raised :

1. methods of coordination of the marking of scripts in individual subjects;
2. combining of marks secured by a candidate in different subjects offered by him.

These problems are accentuated and magnified in mass conducted examinations in which thousands, nay lakhs, of candidates are involved.

The first issue, namely, marking of scripts in individual subject in an examination conducted for a large number of candidates raises the age-old question of the subjective element entering into marking and, therefore, invalidating the marks of examiners because they are not comparable. Sta-

ted in another way, it means that if the same scripts are given to different examiners it will be found that the marks given by them vary very considerably. The problem then is how to remove the subjective element and bias of individual examiners.

STANDARDIZING EXAMINERS

Before dealing with the statistical procedure required to remove the subjective element and bias of individual examiners in the marking of scripts, certain refinements in the setting, moderating and marking of scripts will be considered to help in this process

As the preparation of a question paper is a time-consuming process, the work should start over a year before the date of the examination

The first procedure is to draw up a blue-print of the question paper to be set, so that the validity of the examination in that subject is achieved, that is, the purpose of the examination is ensured. The blue-print will indicate the proportion of marks to be allotted to the areas of knowledge, skills, concepts, etc , which are to be tested Thus, in *Geography a blue-print might be drawn up thus ;

Content	Behaviour					Total
	Knowledge of facts etc.	Understanding of concepts	Application of concepts	Skills	Relevant imaginative insight	
India	4	5	5	2	4	20
World Geography	4	5	5	2	4	20
Special Regions	4	4	4	4	4	20
World Issues	5	5	3	3	4	20
Local Geographical Experience	4	3	3	6	4	20
	21	22	20	17	20	100

The Chief examiner or the paper setter must base his questions on the blue-print taking into consideration the scope of the syllabus, whether the question papers are of equivalent standard to the question papers of the previous years, the age group of the candidates, the number of years of study for the prescribed course and such other relevant factors.

In drawing up this first draft the chief examiner should be assisted by senior colleagues. This draft must then be sent to a *moderator* whose function is to safeguard the point of view of the candidates who are taking the papers. He must ensure that the papers are technically correct and that they are a fair and sufficient test for the candidates for whom they are intended. The moderator must submit a report on the draft question paper.

Thereafter, the report must be considered at a meeting of the chief examiners of the different papers in that subject, the moderator and expe-

*Adapted from Examinations Bulletin No. 3—The Certificates of Secondary Education: An introduction to some techniques of examining—Secondary School Examinations Council, England

rienced senior examiners. If necessary, questions may be rejected or modifications carried out in accordance with the decisions taken at the meeting.

New versions of questions must again be submitted to the moderator and, if necessary, another meeting of the chief examiners in the different papers in that subject convened till agreement has been reached on the final form of the paper.

It is important that in subjects where problems are set e.g. in the sciences and mathematics, assistant examiners who have not been responsible for drawing up the questions or reviewing them should be given the task of working the draft questions and providing solutions. The difficulty of the problems and the validity of the time allowed for the paper are thus tested.

After this and before the examination begins, the chief examiner with the help of senior colleagues must draw up the scheme of marking which will be used by all assistant examiners. The scheme will vary in length and in detail according to the nature of the subject and the paper. In general the scheme should set out the principles of marking which are to be observed, maximum marks which are to be allotted to the various questions, steps of working and the points or versions which are to be rejected or accepted. Thereafter, the scheme must be circulated to the assistant examiners to be studied by them.

When the scripts have been received, the chief examiner must mark a certain number of scripts, select specimens which are typical of the various standards of attainment or which illustrate points of particular interest. Photographic copies of these specimens must be supplied to assistant examiners and then a co-ordination meeting of all examiners must be summoned. The meeting will discuss the scheme of marking, which may be amended or added to in the light of the scripts which have been seen. The specimen scripts will then be marked independently by all the assistant examiners, the discrepancies discussed and investigated and rulings given by the chief examiner on doubtful points.

The assistant examiners then begin the process of marking, following the marking scheme with the aid of the specimen scripts. Where the number of candidates is large, for every four or five assistant examiners a senior examiner known as a 'team leader' should be appointed to scrutinize the marked scripts of the assistant examiners. These in turn should be submitted to the chief examiner who reviews the sample scripts of the assistant examiners and, if necessary, holds discussions with the team leader and assistant examiners. The whole purpose of the processes described above is to *standardize* the examiners.

Other factors, which will help in the standardization of examiners are fair remuneration, a limited number of scripts (not more than 300 to 400), a fixed number of hours of marking in properly ventilated and, if necessary, in air-conditioned rooms.

RANDOM SELECTION OF SCRIPTS

However, these factors will not eliminate the subjective element of individual examiners. One of the main factors which brings into play the subjective factor is the quality of scripts which an examiner is expected to mark. Inspite of the detailed marking scheme, good working conditions, adequate remuneration, a lighter load of scripts, examiners are affected and influenced by the quality of scripts they are required to mark. If the ave-

rage quality of scripts to be marked by examiners is good, then the poorer scripts, by comparison, will be marked strictly.

On the other hand, if the average quality of the scripts is sub-standard then the scripts which would otherwise be of average quality are given marks which would normally be given to good scripts

The first need, therefore, is that the different examiners get [illegible]

ciple that can be invoked to solve this problem—the principle of "*random selection*". If scripts to different examiners are allotted on the basis of a process equivalent to drawing up lots and (lotteries are not fashionable !) then the lots given to different examiners will be approximately of the same average quality.

There are two important statistical factors in the principle of "random selection" which will determine a common pattern of marking and will reduce the subjective element. These are·

(*i*) that in lots of three to four hundred scripts it will be found that the mean (average mark) or the median (middle mark) of the different lots of scripts will lie between a narrow range of two to three marks,

(*ii*) the range or spread of marks (the lowest mark scored and the highest mark secured) will not vary very greatly from one lot of scripts to another.

Thus, if there are great variations in the mean or median mark or in the range or spread of marks, it will mean that the subjective bias of the examiners is dominant, and therefore, it will be statistically justifiable to scale the marks given by the examiners to conform to a common pattern.

Antoher important statistical axiom which justifies the scaling the marks of examiners to a common pattern is that where there are scripts of several thousands of candidates, tauhgt in a large number of schools, by hundreds of teachers, it is mathematically sound to conclude that the standards of teaching, the quality and the preparation for the examination cannot show wide fluctuations from one year to another. Any variations found from year to year cannot be attributed to variations in teaching or the intelligence or attainment of candidates but in the standard of the question papers, the standard of marking and other concommitants of the examination.

ADJUSTING THE MARK OF DIFFERENT EXAMINERS

An experiment was made by Gauhati University on the adjustment of the marks of different examiners

This study helped to highlight that *chance* in the conventional examination is far greater than has been previously suspected on account of un-

The Gauhati University investigation was based on what is termed 'median scaling'. To quote the report again, "If all the marks on the sheet are taken in order of magnitude beginning with the highest and ending with the lowest, the middle mark is the 'median'. The median divides the group of marks into upper and the lower half with the same number of entries in each. In the same way, the *upper quartile* is the middle mark in the top half and the *lower quartile* is the middle mark in the bottom half."

"The mean is a measure of the standard of marking. It is the mark which the examiner gives to a script of average merit."

In other words, the average of the median mark of the different examiners is worked out and treating this as the norm for those cases where the median mark of an examiner differs from the norm beyond a certain range, the marks in the whole lot of scripts marked by an examiner are adjusted, that is to say, raised or lowered proportionately.

But, it should be noted that the Gauhati University investigation adjusted the marks of the different examiners in the median marks only and *not* in the *spread of marks*.

The report itself states :

"Mark sheets differ not only in the value of the median, but also in the spread of marks......The spread is measured by the standard deviation which is approximately three-quarters of the inter-quartile range."

The report continues: "Ideally marks should be scaled so that all sets of marks have (*a*) the same mean or median and (*b*) the same standard deviation. Of these (*b*) presents the more difficult problem, which needs further study...."

In an article published in the Indian Educational Review (January 1968), Professor V. M. Dandekar commenting on this observation of the report says :

"However, this is not entirely true. Two sets of marks having the same mean or median and also the same standard deviation may differ in several important respects."

He goes on to illustrate this and concludes thus: "The reason why two sets of marks with the same mean and standard deviation do not agree in several important respects is simple. As pointed out above, the mean and the standard deviation are particular measures of the average level and of the spread of marks. These measures would have special significance only if the distribution of marks as given by examiners were perfectly normal. The term 'normal' here does not mean more than a particular form of statistical distribution. If the distribution of marks were perfectly 'normal' in this sense, it could be shown that two sets of marks having the same mean and the same standard deviation would agree in all other respects."

THE J-EFFECT

The marks of examiners, unfortunately, do not conform to a normal distribution curve. The Gauhati report draws particular attention to this important aspect of the marks of examiners: "A prominent feature of many mark sheets has been called the 'J-effect', since it often gives a J-shaped distribution. In these mark sheets a disproportionate number of scripts are placed exactly at the pass mark and there is a corresponding gap in the marks immediately below......"

"The J-effect arises when the examiner considers it his function to decide whether the candidate passes or not. Recognising, perhaps rightly, that his marks are affected by uncertainties, he gives the benefit of doubt to the candidates whose marks are just below the line. .. "

"In adjusting border-line cases the examiner is actuated by a perfectly sound motive....but here it is being done at the wrong stage. It is essenttial that border-line adjustments shall be made only in the light of the total evidence when the results are complete."

FUNCTION OF RAW MARKS : RANK ORDERING

Before suggesting and analysing a method of adjusting marks to overcome the shortcomings pointed out by Professor Dandekar, it may be well at this point to examine the purpose of the raw marks awarded by examiners.

marks awarded for a question or a different parts of a question, these should be reduced a minimum. It is important to remember that marks, being relative, must be regarded as aids in measuring rather than as absolute measures in themselves.

The primary and perhaps the only purpose of awarding marks, whilst an essential process in an examination, is a ranking procedure which places candidates in a particular order relative to one another. In other words we accept the rank order indicated by the marks given by a particular examiner and this rank order must not be distorted by any subsequent procedure. It is necessary to repeat that the assigning of numerical marks to scripts by an examiner is a necessary step in the examination process and it is not suggested that this assigning of numerical marks should be abolished.

However, once the examiner has indicated the order in which these scripts are to be placed, the value of the marks assigned by him are not relevant.

A SIMPLE METHOD OF MARK DISTRIBUTION

We now return to the best means of adjusting the marks of different examiners taking into account the comments made by Prof. Dandekar

Prof. Dandekar's own suggestions (and that adopted with modifications by a large number of examining bodies) are given below:

"The distributions of marks as given by examiners are usually *not*

of a pattern of distribution is to indicate the number or proportion of candidates who have secured marks between certain ranges."

The study of Table 1, which must be considered merely *illustrative*, will clarify the proposition just enunciated.

The table gives the ranges of marks (Column A) and against each range or group of marks the percentage of candidates securing those marks (Column B):

The Gauhati University investigation was based on what is terme 'median scaling'. To quote the report again, "If all the marks on the she are taken in order of magnitude beginning with the highest and ending wi the lowest, the middle mark is the 'median'. The median divides the grou of marks into upper and the lower half with the same number of entries each. In the same way, the *upper quartile* is the middle mark in the to half and the *lower quartile* is the middle mark in the bottom half."

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THE J-EFFECT

The marks of examiners, unfortunately, do not conform to a norm distribution curve. The Gauhati report draws particular attention to th important aspect of the marks of examiners: "A prominent feature many mark sheets has been called the 'J-effect', since it often gives a J-shape distribution. In these mark sheets a disproportionate number of scripts a placed exactly at the pass mark and there is a corresponding gap in the mar immediately below......."

"The J-effect arises when the examiner considers it his function to decide whether the candidate passes or not. Recognising, perhaps rightly, that his marks are affected by uncertainties, he gives the benefit of doubt to the candidates whose marks are just below the line. ...."

"In adjusting border-line cases the examiner is actuated by a perfectly sound motive....but here it is being done at the wrong stage It is essential that border-line adjustments shall be made only in the light of the total evidence when the results are complete."

FUNCTION OF RAW MARKS : RANK ORDERING

Before suggesting and analysing a method of adjusting marks to overcome the shortcomings pointed out by Professor Dandekar, it may be well at this point to examine the purpose of the raw marks awarded by examiners.

[illegible]

marks awarded for a question or a different parts of a question, these should be reduced a minimum. It is important to remember that marks, being relative, must be regarded as aids in measuring rather than as absolute measures in themselves.

The primary and perhaps the only purpose of awarding marks, whilst [illegible]

ner and this rank order must not be distorted by any subsequent procedure It is necessary to repeat that the assigning of numerical marks to scripts by an examiner is a necessary step in the examination process and it is not suggested that this assigning of numerical marks should be abolished.

However, once the examiner has indicated the order in which these scripts are to be placed, the value of the marks assigned by him are not relevant.

A SIMPLE METHOD OF MARK DISTRIBUTION

We now return to the best means of adjusting the marks of different examiners taking into account the comments made by Prof. Dandekar

Prof. Dandekar's own suggestions (and that adopted with modifications by a large number of examining bodies) are given below:

"The distributions of marks as given by examiners are usually *not* normal and often they are far from be[illegible] normal. Under these [illegible]
it may [illegible]
tions o[illegible]
of a pattern of distribution is to indicate the number or proportion of candidates who have secured marks between certain ranges"

The study of Table 1, which must be considered merely *illustrative*, will clarify the proposition just enunciated

The table gives the ranges of marks (Column A) and against each range or group of marks the percentage of candidates securing those marks (Column B):

TABLE I

(A) Range of Marks	(B) Percentage of candidates
80 and above	2
70-79	8
63-69	10
59-62	14
55-58	16
50-54	20
45-49	10
40-44	10
39 and below	10

If all the examiners marking independently within the marking scheme and, without adjusting their marks, get the same percentage of candidates in each range or group of marks as shown in Table 1, then we would have a pattern of distribution of marks which will be identical and which would make the marking ideal. Quite obviously, it is not possible for even two sets of marks of different examiners, mainly because of the subjective factor, to agree in respect of proportion of candidates falling into each group of marks, as we would desire. How then can this pattern of distribution of marking of different examiners be achieved?

The simplest method and the method which is mathematically correct is to adjust the marks given by each examiner so as to bring the pattern of his marking into conformity with a common pattern which must be determined, as for instance, as given in Table 1.

The next question that arises is how are we to determine with mathematical precision the percentage of candidates falling within each range of marks. This may be done as follows: After all the examiners have marked their lots of scripts (based on the principle of random selection) their marks may be pooled together and distributed for each range of marks.

Thereafter, the marks given by each examiner should be adjusted so as to bring the pattern of his marking into conformity with the common pattern. This procedure suffers from one grave defect, in that the adjustment of marks of individual examiners cannot be carried out until all the scripts have been marked. In practice this may lead to a considerable delay in the declaration of results.

It may also mean that there will be a variation in the results and, therefore, of standards, in a subject, from year to year. In order to prevent the delay in the operation of the sytem and to avoid wide variations in the reresults from year to year, the simplest method would be to establish the percentage of candidates in each range of marks for each subject based on the norms of past years, say five years. Thus, actual marks given by all examiners in the past five years can be distributed and the proportion of candidates falling within each range of marks, such as 80 and above, between 70 and 79 etc., etc., may be worked out. These can then be the norms which would serve for some years, subject to periodical revision.

To recapitulate the process of adjustment of marks will involve the following:

(*i*) determination of the proportion of candidates falling within each range of marks;

(*ii*) ranking the numerical scores of each examiner in a descending order of marks;

(*iii*) scaling the rank order of each examiner to conform to a common pattern.

ASSIGNING GRADES

Having adjusted the marks of the different examiners to conform to a common pattern of mark distribution and after ranking the scripts examined by each examiner in a descending order of the marks given by them, [illegible] grade 1, the next [illegible] on (see Table [illegible] *not distorted.*

TABLE 2

(A) Range of Marks	(B) Percentage of candidates	(C) Letter Grade	(D) Number Grade	(E) Standard
80 and above	2	A1	1	Very good
70-79	8	A2	2	
63-69	10	B1	3	Credit
59-62	14	B2	4	
55-58	16	C1	5	
50-54	20	C2	6	
45-49 .	10	D1	7	Pass
40-44	10	D2	8	
39 and below	10	E	9	Fail

It should, however, be made clear that the examiners must not be asked to allot grades rather than numerical scores The numerical marks given by examiners are essential. It is only after the scripts have been put in a particular ranking order, on the basis of the marks assigned by each examiner, that the grades may be assigned.

It should be emphasized that the percentages for each range of marks in Tables 1 & 2 are purely *illustrative*

NORMS IN DIFFERENT SUBJECTS

The attempt in this paper, so far, has been to find ways and means of ensuring the comparability of marks of different examiners in a subject. Certain methods on the establishment of 'norms' for the distribution of [illegible]

Arising from this is another relevant and important question: should the pattern of mark distribution be the same for different subjects?

At present in a large number of examinations in India not only are the pass percentages in a certain subjects, specially the humanities lower than those in the sciences and mathematics but he numerical marks are also disproportionately lower. There is no real justification for this.

If the examiners feel that a higher percentage of passes and higher 'scores' are not justified on their past experience, then it would clearly indicate that where candidates are permitted to '*opt*' for subjects there must be some defect in the curricular burden of the humanities subjects. This must be examined. If, however, the disparity in pass percentages and numerical scores is due to the fact that examiners are not using the full marking scale (0-100) in assessing the scripts of humanities subjects, the immediate remedy is obvious.

Different pass percentages and mark distribution pattern in *elective* subjects where there are large numbers of candidates is not logical nor justifiable.

On pedagogical grounds it is hard to resist the logical conclusion that the pass percentage and the pattern of mark distribution should be more or less the same for all subjects.

Combining grades of different subjects: The second problem posed earlier was that of combining of marks secured by candidates in different subjects offered by them.

There are well-known statistical procedures for converting grades into marks. In Table 2 number grades have been suggested, in addition to letter grades. It is possible by means of a grade aggregate to classify candidates into first, second or third divisions. Thus, on a five subject pass, assuming that the subject and other requirements laid down for a pass are fulfilled, the following scheme (using the range of marks given in Table 2) which is used for the Indian School Certificate Examination, may serve as a guide:

A grade aggregate not exceeding 19	Division 1
Grade aggregate 20 to 28	Division 2
Grade aggregate above 28	Division 3

However, it cannot be too strongly recommended that the final result of a candidate should consist only of the grades secured by him in each subject in which he passes. The report of the Kothari Commission says: "We recommend that the certificate issued by the board on the basis of the results of the external examination at the end of the lower or higher secondary stage, should give the candidate performance only in those subjects in which he has passed, but there should be no remark to the effect that he has passed or failed in whole examination."

CONCLUSION

The attempt in this paper is to show that the numerical mark assigned by an examiner is an indicator for rank ordering of scripts only and has no absolute value.

The paper recommends that stat[illegible]
to ensure comparability of marks of [illegible]
different subjects. The procedures [illegible]
on the principle of random selection, the scaling of marks based on a common pattern of mark distribution in the same subject, the adoption of a common pattern mark distribution in different subject more especially elective subjects and the recording of '*grades*' only in the final certificate issued without dubbing candidates *first*, *second* or *third* class!

Scaling of Results

M. D. TRIVEDI

MARKING

ALL TECHNIQUES OF evaluation including examinations are processes of collecting evidences about students' development in desired directions. We realise that the external examinations will remain with us for a long time, especially in universities which have large number of affiliated colleges of very unequal standards, as Kothari Education Commission puts it. Through such a conventional examination, a student's performance on attainment is measured. The marks awarded to a student, it is said, tell us how much he knows and understands or his level of competence. Do these marks really do so?

We add marks scored by different examiners together without any reference to the scales to which those marks refer. In the words of Dr. H. J. Taylor, it is as though the physicist added Fahrenheit and centigrade temperatures of the accountant added rupees and dollars. Such vitiation of examination results by arithmetical fallacies makes them unreliable. Marking is a complex and difficult problem. As Thorndike said, "Measurements which involve human capacities and acts are subject to special difficulties due chiefly to:

(1) The absence or imperfection of units in which to measure,

(2) The lack of constancy in the facts to be measured, and

(3) The extreme complexity of the measurements to be made."

This is not to say that no new marking system, however, clearly devised and conscientiously followed, is likely to solve the basic problems of marking. In the meantime we should learn to use the present instrument more intelligently.

An examiner measures the performance of a candidate by assigning

marks to his answer scripts. A mark, however, imprecise, is essentially a measure number, subject to uncertainty The mark may be a measure of the candidate's knowledge or memory or intelligency or power of expression or sometimes his handwriting. In any case where human judgement is involved, margin of error becomes wider, which results in wide variations in marking.

Marking standards and the meanings of marks tend to vary from examiner to examiner, from course to course, from faculty to faculty and from university to university.

Harper Jr. reports in his research 'Ninety marking ten a study of examination', that different experienced examiners award different marks to the same answer book to the extent that one examiner awarded a distinction while another considered it worthy of only 22% marks. Dr. Taylor also arrived at the same sort of results in his study on the examination of examiners. This shows that it is risky to depend entirely on the judgement of one examiner. He has further shown that even a single examiner may show considerable changes in his standard of scoring as he works through the scripts to the extent of 10% marks Large variations in standard of scoring seem to be the rule rather than the exception, as Dr. Taylor puts it

If we comment on the state of affairs, lack of uniformity in scoring as reported can be ascribed to the traditional essay type of examination rather than to the examiners. It should be realised that subjectivity of scoring is not the major defect of traditional examinations Even if scoring were completely objective, the traditional examination would still be unreliable.

FORM OF QUESTION AND SCORING RELIABILITY

The subjectivity of scoring can be minimised by introducing objective type of examination. Besides its objectivity of scoring the objective examination is more reliable for various other reasons As Dongerkery Committee on University Examination Reform suggests, use of methods of evaluation other than essay type examination such as multiple choice tests, short-answer tests, open book tests, viva-voce, etc. may be tried wherever necessary The essay type of examination may continue as the chief mode of evaluation in our universities, it is necessary to make it a fitter instrument for measuring the educational achievement of the students. As we are aw[illegible] the defect of its poor sampling of [illegible] very inadequate coverage of the sub[illegible] questions. An objective examination is an answer to these shortcomings. Attempt should, therefore, be made to improve questions, question-papers, scoring procedures and interpretation of scores in order to make the examination valid, reliable, objective and praticable.

Questions should be made specific in terms of objectives, content and language. Form of question should be suitable for testing the objective and the content area most effectively. It must have a desired difficult index and should discriminate between the bright and poor students. Better question papers can be set by giving proportionate weightage to objectives, content areas and different forms of questions like short answer type, multiple-choice type, etc. Overall options should be avoided. Internal options with equivalence of questions may be preferred to overall options.

With a view to increasing scoring reliability, scoring procedures need improvement. The paper-setters should be instructed to develop a marking scheme along with the setting of the question paper. The marking scheme has a design and contains value-points for each question against which marks are shown in the scheme. Suitable instructions to examiners in this regard help to bring about uniformity of standing in scoring.

CORRECTIONAL SCORE AND RELIABILITY OF EXAMINATION

In a study sponsored by the National Council of Educational Research and Training it was found that the same candidate was awarded a distinction by one examiner, a first class by 8, a second class by 41, a third by 33 and a clear fail by 7 experienced examiners. Apparently, examiners were not even clear about the difference between 'Dinstinction' and 'Fail'. As several researches have pointed out, the marks or even the divisions—of a candidate depend more on the chance of who his examiner is than on the candidate's actual merit.

Statistically interpreted, different examiners show wide variations in mean and standard deviation of the scores. It is therefore imperative that marks should be scaled to the same mean and standard deviation before being combined, otherwise large errors will vitiate the results. The Don gerkery Commission also observes that the present method of marking examination scripts and of combining and tabulating marks in university examinations without reference to recognised statistical procedures are not satisfactory.

Normative scaling methods may be used to scale the results. They are (*i*) linear transformation and (*ii*) the area transformation.

If the mean and standard deviation of the scores are known, the deviation of any score from the mean can be expressed as a multiple of the standard deviation. Such a score is commonly known as a standard score or Z-score. Scores are scaled to a mean 50 and S.D. 10. Since standard score is derived by dividing a deviation from the mean by the standard deviation, both of which are in the same unit, it is an abstract quantity, that is, a quantity independent of the original measurement unit. The shift from raw score to standard score requires a linear transformation.

If scales were constructed so as to yield distributions of some 'standard' form for the populations involved, then standard scores could always be interpreted with reference to the 'standard' form. The standard form or pattern usually is normal distribution and the transformation is called area transformation. This scheme is in one sense a combination of the percentile rank and standard score approached. These normalised standard scores are T-scores. Since T-scores are based on the Z-scores of the normal curve, the T-scores of two or more distributions are always, comparable and combinable—Z-scores are comparable and combinable only, if the distributions are normal. T-scores can always be interpreted without error in terms of percentile ranks.

It is interesting to note how the results expressed in raw scores show a marked change when scaled in either of the ways explained *viz.* Z-score or T-score. An analysis of the results of the B.Ed. examination for 1968

of the Saurashtra university reveals the follwing picture :

Divisions according to T-Scores

		No	Dist	First	Second	Pass	Fail	Percentage
		313	3	22	104	147	37	88 2
Divisions	Distinc	10	3	6	1			
According	First	58		16	42			
to raw	Second	211			61	137	13	
scores	Pass	33				10	23	
	Fail	1					1	
	Percentage							
	Result	99 7						

From the above table, it is evident that conversion of result from raw scores to T-scores affects the classification Out of 10 placed in distinction only 3 keep up the division whereas 6 get first and 1 second division Figures in the boxes show the number of candidates maintaining the divi-

In large examinations, differences in the mark-distributions can be attributed to the examiners which can be corrected by scaling The technique by which the marks of the examiner are adjusted until the mean and variance are approximately the same can be adopted.

In order to increase the reliability of the results, it is important that the distribution of the answer scripts should be random and the marks should be scaled.

Practice of moderating the answer script and giving 'grace mark' should also be viewed in this light Instead of having any arbitrary principle of grace marks, it must be done with reference to the standard error of marking The probability can be computed that the total mark falls above the pass line. All the candidates for whom this probability reaches the specified value should be passed ... aling would ... percentage ... Studies on large examinatins have shown that the aggregate total mark is more reliable than any of the single papers, as some of the sources of unreliability tend to average out.

IN CONCLUSION

We have seen several examples of the unreliability of the traditional essay type examinations. Problems highlighted include marking system, form of question and question-paper and the misclassifications on account of examiner's errors. Ways of uniform scoring, improvement of the form and content of the question paper by adopting objective examination and the need and method of scaling of result have been suggested. Every university should set up an evaluation unit of its own, adequately staffed with administrative officers and academicians who are technical experts in the

With a view to increasing scoring reliability, scoring procedures need improvement. The paper-setters should be instructed to develop a marking scheme along with the setting of the question paper. The marking scheme has a design and contains value-points for each question against which marks are shown in the scheme. Suitable instructions to examiners in this regard help to bring about uniformity of standing in scoring.

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Scaling of Marks

V S. MISRA

WHAT IS SCALING?

SUPPOSE WE ASK : "The length of article A is 50 (?) and of B is 5 (?) Whic[h] one is longer?" This question cannot be answered We may make th[e] question precise as: "The length of article A is 50 centimeters and of [B] 5 meters. Which one is longer?" To solve it, we convert the lengths of both the articles to the same scale We find that the length of article A is 50 centimeters and of B (5 meters converted to centimeters) 500 centimeters So we conclude that article B is longer than A. Two numbers cannot be validly compared unless they are converted to a common scale The conversion of numbers to a common scale is called scaling

WHY SCALE EXAMINATION MARKS?

Some universities award a prize to the student who gets the highest marks in an examination. This prize usually goes to a student with Mathematics and virtually never to a student with English. Does it mean that usually brighter students go to Mathematics and not to English? No, the reason is something else. While in Mathematics any bright student can expect to get 100% marks, in English none This means that 70 raw marks in Mathematics are not the same as 70 raw marks in English (For further discussion of this point see Harper, 1963) Again, even in English 70 raw marks awarded by one examiner (who often awards 70—80 marks) is not the same as 70 marks awarded by another examiner (who has never in the past awarded more than 60 marks). To make the point clear we reproduce below the results given by two competent examiners in English II of the Matriculation examination 1963 conducted by the Gauhati University. Both the examiners had examined statistically equivalent sample of scripts

field of evaluation and statistics. If the idea of continuous evaluation instead of a single examination season is to be implemented, such an evaluation unit should be well organised and administered on a permanent basis.

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Examiner X   60% passes
Examiner Z   2% passes

If the marks are unscaled, examiners X and Z will be treated as of the same standard with the result that some good students examined by Z will fail and some weak ones examined by X will pass.

One major purpose of an examination is to rank students in the order or merit. This cannot be validly done unless the marks of different examiners and of different papers are brought to a common scale. In the absence of scaling this very purpose of examination cannot be validly achieved, hence the need for scaling.

We shall consider scaling under two broad heads: Intra-subject scaling; *i.e.*, conversion of raw marks of different examiners of a paper to the same scale. Inter-subject scaling; *i.e.*, conversion of raw marks of different subjects to the same scale.

INTRA-SUBJECT SCALING

For scaling we must be satisfied with either of the two conditions: (1) The lot of answer scripts examined by all the examiners are equivalent. (2) There exists accurate estimate of the distribution of abilities in every batch.

RANDOMISATION

Though it is somewhat difficult to satisfy the second condition, its feasibility cannot be ruled out. The first condition can, however, be easily met by any examining body. It is to satisfy this condition that the Gauhati university has introduced "randomisation of scripts"in its major examinations. The method of randomisation is very simple (Taylor, 1963). This has an additional advantage that any mistake in awarding roll numbers can be easily traced which is not possible without an arduous search in the ideal procedure of randomisation, which means drawing of numbers from a hat. It seems well to illustrate step by step how randomisation is actually done. To make the arithmetic of the illustration simple, we shall suppose that there are just five colleges each with eleven students and there are three examiners—A and B getting 18 scripts each and C getting 19 scripts.

Step 1. On the printed grid of the type enclosed herewith distribute roll numbers by writing them consecutively in the diagonal order from the top left hand corner reversing the direction at the boundary lines and jumping over cells already filled. When the sequence ends at a corner, the next start is made from a vacant corner. When this sequence also ends, the next start is made from the first vacant space in column 1. For the 55 students a filled ingrid is shown in Table 1.*

Step 2. Allot roll numbers to the colleges column by column. This is shown in Table 2.*

Step 3. Allot the scripts in the serial order of roll numbers to the examiners. This would be as noted below :

Examiner A Roll Nos.	1—18	=	18 scripts
Examiner B Roll Nos.	19—36	=	18 scripts
Examiner C Roll Nos.	37—55	=	19 scripts
			55

*Table I and II are on page 149 please

It may be seen from Table 2 that examiner A gets Roll Nos. 1, 2 and 18 from college I; 3, 4, 16 & 17 from II; 5, 6, 7 & 15 from III; 8, 9, 10 & 15 from IV; and 10, 11, 12 & 13 from V. Thus he gets approximately equal number of candidates from every college. Under this method we may, therefore, safely assume that every examiner gets a fairly representative sample of the total examinees. An empirical study (Misra, 1970) corroborates this assumption

Randomisation has several other advantages. If the scripts of an institution go to one examiner, it may be possible for an examinee to locate his examiner or for an examiner to know who are his examinees. We do not know to what extent this knowledge produces error in assessment. But it is always safe to have a method where the scripts of an institution go to almost all the examiners [illegible] and examinees is ensured. [illegible] judged by its examination [illegible] go to many examiners, no [illegible] because of the strictness or leniency of examiners. Research has shown that for any population the distribution of abilities is normal Since in this system every batch is a representative sample of the population, we may assume that not only all the batches are equivalent but also the actual distribution of abilities in each approximates normality.

The procedure of randomisation appears to be difficult but in practice we have found that even office assistants can do it efficiently. Besides, it is not essential that every year we prepare a set of random roll numbers. We may get in advance a few sets prepared and use any whenever necessary

SCALING

Many methods of scaling have been suggested in India (Mahalanobis and Chakravarty, 1934; Hossain, 1940; Bose and Choudhury, 1955; Gayen *et al.*, 1961; Taylor, 1963; Harper, 1963) We shall discuss here the method which seems to be most appropriate to our situation and easy.

(A) *Instructions to examiners for marking* : Several studies done by the present author and others in India have shown that some examiners give a few low [illegible] In either case [illegible] examiners hav[illegible] cases at various division levels, especially at the pass level, with gaps below such levels). In fact every examiner has in mind some vague specifications about the distribution of marks of an ordinary batch. No two examiners *have the same specification in mind. Probably it is one of the reasons for* large variations in marking scales of different examiners. In the absence [illegible] marks in each lot of scripts should be roughly normal with mean about ————, and standard *deviation about————— The* pass percentage is *expected to be around————. The* figures in the blanks [illegible] *Examina-*tion of the scripts [illegible] the existing *wide* [illegible] *of different*

examiners, and, as such, remove many uncertainties that creep in the examinations due to such disparities.

(B) *What batches need scaling ?* After raw marks from the examiners are received they are to be scaled. For scaling we require an estimate of the population parameter. Research has almost conclusively shown that for a large population, a population parameter does not change significantly from an year to the succeeding year. Thus the parameter for the preceding years examination may be taken as the best estimate of the population parameter. Another method of the estimate of the population parameter could be to take the weighted average of the means and variances of all the batches. We recommend the first method, since in this we do not have to wait for starting scaling till all the mark sheets are received.

Even if all the examiners mark the scripts on exactly the same scale, the means and standard deviations of all the batches may not be identical. There would be some differences due to sampling errors. The batches, where such differences are within the limits of sampling errors, need no scaling. The batches, where the mean, standard deviation, or both differ beyond such limits, have be scaled to bring them within the limits.

(C) *Standard deviation scaling* : This is the most widely used method of scaling and is best suited to the situations where scripts are randomised. The formula for the standard deviation scaling is:

$$X = \left(\frac{S}{s} x\right) + \left(M - \frac{S}{s} m\right)$$

Where x is raw marks, and X is scaled mark;
m is raw mark mean and M is scaled marks mean;
s is raw mark standard deviation and S is scaled mark standard deviation.

The following illustration will make clear the application of the formula and the accuracy in marks we derive by using it:

Harper and Misra (1970) got a set of 10 scripts (X-erox copies) examined by ninety experienced examiners of a higher secondary board. To make the examining conditions realistic, the scripts were sent to the examiners during the summer vacation when they usually mark the Board's scripts. The same instructions for marking were given as are given by the board and the examiners were paid the board's rate of remuneration. Table 3* shows the raw marks awarded to the same ten scripts by examiners Nos. 15 and 6 at the left hand side. The *rho* (rank order correlation) for the two examiners is .81 which at the face value indicates a high examiner reliability. None the less, the mean of the differences between the raw marks of the two examiners is 14.1 Note, examiner 15 has passed only 10% while examiner 6 has passed 90% students. (The pass marks in the question paper was 15). The present author has repeatedly observed (though in vain) that in the absence of scaling, reliability coefficients give a misleading picture of the reliance that can be placed on examination marks. The present one is a concrete case to illustrate the point.

It may be repeated here that for scaling we have to decide to what mean and standard deviation the marks are to be scaled. In the present case the marks of examiner 15 could be scaled to the mean and standard deviation of marks of examiner 6, or the marks of examiner 6 could be scaled to the mean and standard deviation of marks of examiner 15 or marks of both the examiners could be scaled to some other mean and standard deviation.

*Table 3 is on page 149 please.

Presently we decide to scale the marks of examiner 15 to the mean and standard deviation of marks of examiner 6. We apply formula (1). The raw mark mean and standard deviation in the present case are 8.1 and 4.66 respectively (*i.e.*, the mean and standard deviation of marks of examiner 15). The mean and the standard deviation to which the raw marks are to be scaled are 22 and 6.52 respectively (*i.e.*, the mean and standard deviation of marks of examiner 6). Inserting these figures in the formula we get:

$$X = \frac{6.52}{4.66}x + 22.2 - \left(\frac{6.52}{4.66} \times 8.1\right)$$

$$= 1.4x + 10.9$$

Thus raw mark 7 becomes (1.4)7 + 10.9=21 and raw mark 5 becomes (1.4) 5+10.9=18. Similarly other marks can be scaled. (With the use of a calculating machine such conversion can be made practically in no time). The scaled marks for the two examiners are noted at the right hand side in Table 3. After scaling, the rank order of the students remains exactly the same. The examiner reliability also remains unchanged. However, the average of the differences between the scaled marks of the two examiners is reduced to only 3.9. For the unscaled marks the smallest difference was 8, for the scaled marks the largest is 7. The number of students passing the examination is the same for both the examiners for the scaled marks.

Both were highly experienced examiners of the board, both worked under the same instructions, both knew that their marks are open to analysis as such most likely had taken every caution to enforce accuracy in marking. The present result may, therefore, be considered as indicative of what we may expect even from the marking of experienced examiners. The amount of injustice done to the students if one batch is given the raw marks awarded by examiner 15 and another awarded by examiner 6 can better be realized than described.

The standard deviation scaling is criticised sometimes on the ground that the distribution of scaled marks remains the same as that of the raw marks. Hence skewness and "J-effect" produced due to the defective marking scales of examiners are allowed to remain after scaling. Again, due to the skewed distribution of raw marks, this method may give scaled marks beyond the range of marks allotted to the paper. After we hve randomised the scripts and specified the distribution of raw marks such criticisms would not hold good in our case.

Sometimes it is said that scaling is not needed in such subjects as Mathematics, Physics, etc. because marking in these subjects is almost objective. Whatever little research on the precision of marking has been

tional essay tests there are any papers where marking is objective, such papers would, under the proposed scheme, automatically not be scaled because in that event mark distributions in different batches would not exceed the limits attributable to sample errors.

(D) *Why not to scale only means* : In deciding the rank or division of a student in the examination, it is the standard deviation and not the mean that plays the dominant role. To illustrate the point we give below the means

and standard deviations for two examiners who marked the same set of 50 scripts in Mathematics:

	Mean	*Standard deviation*
Examiner X	11.08	8.45
Examiner Y	11.08	9.50

Here mean is identical for both the examiners but standard deviations are different. It was partly due to the difference in the standard deviations that while examiner X gave up to II division examiner Y gave up to I. If only mean scaling is there, these batches will escape scaling.

INTER-SUBJECT SCALING

What has been stated for intra subject scaling holds good for inter-subject scaling. Inter-subject scaling may be safely employed in the cases where a common batch has appeared for all the subjects to be scaled. When different batches appear for different subjects but still we may assume that the distributions of abilities in all the batches are equivalent, inter-subject scaling can be used. In the cases where the assumption of equivalence of batches is not plausible, scaling can only be employed if there exists some accurate estimate of the distribution of abilities in each batch. To explore an easy way of such estimation further research would be needed.

ADMINISTRATIVE PROBLEMS IN SCALING

To some it may appear that randomisation and scaling would considerably increase the work load of examining bodies and delay the publication of results. In reality it is not so. A set of random roll numbers can be prepared much ahead of examination time. For the examining bodies which have an access to electronic computers scaling would involve no extra time in the tabulation of results. Where such facilities are not available some scalers are to be appointed. Since the population parameter of the preceding year is to be taken as the best estimate of the required population parameter, the scalers need not wait till all the mark sheets have arrived. If the population parameter is known the decision whether a particular mark sheet would require any scaling or not would hardly take a minute. Most mark sheets, as we have already discussed under "What batches need scaling?" Would not require any scaling. The scalers would pass on such marksheets to the tabulators with a stamp "No scaling" while the tabulators would be busy with the already passed on mark sheets, the scalers would scale the remaining ones. In this manner tabulation and scaling would go simultaneously. We, in the Gauhati university employ randomisation and median scaling by appointing some scalers. It has always been possible for us to publish the results within the scheduled time.

Before concluding this paper we would like to repeat that "Scaling" is the single most important reform that will make our examination marks much more dependable than what they are today. This is a reform which has been tried in many countries and invariably found worthy of trust. This is a reform which neither needs a vigorous training of anyone, nor a radical change in the present system. All that this needs is a decision—a decision to make a break-through.

TABLE 1

Grid for distribution roll numbers

A	1	B	30	C	24	D	45	E	16	F	50	G	27	H	54	J	9	K	38	L	20
A	29	B	2	C	31	D	17	E	44	F	15	G	51	H	8	J	37	K	10	L	39
A	25	B	46	C	3	D	32	E	23	F	43	G	7	H	36	J	21	K	40	L	11
A	47	B	18	C	49	D	4	E	33	F	6	G	35	H	14	J	41	K	12	L	53
A	19	B	48	C	26	D	55	E	5	F	34	G	22	H	42	J	13	K	52	L	28

TABLE 2

Allotments of roll Nos to the colleges

Colleges	I	II	III	IV	V
	1	31	23	35	13
	29	3	33	22	38
	25	49	5	54	10
	47	26	50	8	40
	19	45	15	36	12
	30	17	43	14	52
	2	32	6	42	20
	46	4	34	9	39
	18	55	27	37	11
	48	16	51	21	53
	24	44	7	41	28

TABLE 3

Raw and scaled marks of two experienced examiners examining the [illegible] of ten scripts

Candidates	Raw Marks			[illegible]		
	Exr 15	Exr 6	Difference	Exr. 15	[illegible]	[illegible]
A	7	23	16	21	[illegible]	[illegible]
B	5	15	10	[illegible]	[illegible]	
C	8	27	19	[illegible]	[illegible]	
D	20	34	14	[illegible]	[illegible]	
E	11	29	[illegible]	[illegible]	[illegible]	
F	6	26	20	[illegible]	[illegible]	
G	2	16	[illegible]	[illegible]	[illegible]	
H	7	17	[illegible]	[illegible]	[illegible]	
I	10	[illegible]	[illegible]	[illegible]	[illegible]	
J	5	13	[illegible]	[illegible]	[illegible]	
Mean	8 1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
S D	4 66	[illegible]		[illegible]	[illegible]	

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Scaling of Examination Results

A. B. L. SRIVASTAVA

THE EXAMINATION MARKS are poor estimates of a student's ability and there is a good deal of arbitrariness and error of judgement in assigning students to different ability levels on the basis of the examination marks in any subject. The problem is whether any improvement in the situation can be effected by modifying the examination procedure and by evolving statistical procedures of estimating true ability of students with the help of their examination marks.

CONCEPT OF TRUE SCORES

When we talk of assigning a student to his right place on an ability scale, we mean that there is an unknown *true* score of the student on the scale which the examiner intends to estimate, but which can never be determined exactly in practice. Theoretically to determine this score, we have first to *identify* a universe of items relevant to the given ability. The true ability score then would be the average of scores that he would obtain on a very [illegible] which is formed by randomly [illegible] e-conditions are that the stu- [illegible] close to the true score, first the average of scores on each test given by a large number of examiners is to be calculated, and then the mean of all these averages for the different tests has to be found.

[illegible]

of view, is this. Instead of following the existing practice of paper setting, the examination unit may build up a large pool of questions for each paper on different sub-topics and in a given year, the paper may be set by selecting questions at random from the pools of questions on these topics. This would amount to stratified sampling of items for a given paper The need for moderation of paper will, however, remain to see to it that the paper is well-balanced. New questions may be added to the pools every year and certain questions which are found to be lacking in some aspect on the basis of students' responses may even be dropped from the pool. By continuous trying out of the questions it would be possible to build up a pool of questions which are more or less of equal difficulty value and require equal time for being answered properly. Except in the areas where numerical questions are set, the pool would be of manageable size. For numerical question the pools may consist of only *types* of questions The paper-setters will be assigned the more challenging task of contributing new items for each paper and for this they need not be given only one or two weeks time as is done at present but a much longer time The pool should be available to a paper-setter when he is asked to contribute new items Also he may he asked to suggest improvements in the items already in the pool. Also the need for maintaining strict codfidentiality would become much less. The problem of comparability of standards of question-paper from year to year would also be to a great extent resolved, as the papers of different years would be statistically equivalent

It will, of course, be better to have question paper with a large number of small questions, admitting of short answers, so that a larg degree of equivalence between question-papers of different years i achieved.

It is suggested that the item statistics (difficulty values and discriminati powers) are calculated for every question each year This is something whi a Research Cell or Unit can easily do. These statistics will help in decidi which questions are good for future use and which should be thrown out the pool or retained after modification

This is not a very difficult proposition, because even at present in m subjects all possible questions that have been asked over a number of ye can be readily identified. In fact, the whole syllabus can be spelled ou terms of questions that are or can be set in examinations. Sampling q ions is then a simple task. However, from pedagogical view point, no would perhaps support the idea of spelling out the syllabus in terms of q tions for examination. Moreover, this would restrict the scope for constr ing new, thought-provoking items. Therefore, the need for replenishing pool of items from time to time remains, even if the suggestion for se question-papers by sampling is accepted.

Now let us examine the problem of *sampling examiners*. As has pointed out above, in objective type of tests, there is no scope wha for inter-examiner variability in scoring However, if for practical or gogical reasons, essay or short answer type of questions are cons necessary in a question-paper, variation is found to occur in the marks a ed to a given examinee on the same questions between different exa A statistical solution would be to have each examinee's answer-book e ed by several examiners and a mean of the scores assigned by them as a score of that examinee. Also a least squares estimate of hi

score could be worked out as has been suggested in the previous section. If the budget would permit, from a pool of examiners, several samples of 8 or 10 examiners could be randomly selected to examine different sets of answer-books. At worst, there must be at least two examiners for each answer-book. But even this is generally not possible in practice. Therefore, some other solution must be found to take care of inter-examiner variability in public examinations and we shall discuss this in the next section.

It may, however, be recognised that the statistical formulae for estimating true scores are applicable only when random sampling of examinees, items and examiners takes place. If the formulae are applied to scores obtained in question-papers as are set at present, one will have to assume that questions of the paper constitute a random sample from a hypothetical universe of questions. This is, generally speaking, not a sound assumption.

Statistical formulae on the other hand, also need to be developed to estimate true scores for many new situations. When all the three elements *viz.* examinees, items and examiners are being sampled, the formulae should be based on a three-dimensional matrix sampling. Also, when examinees are allowed choice of questions, when the questions carry different marks and when the paper consists of questions of different types, the statistical procedures of estimating true scores would become exceedingly complex, and quite a bit of research would be needed to develop appropriate formulae for the purpose.

SOME PRACTICAL SUGGESTIONS

In the procedures requiring statistical estimation of true scores for the purpose of scaling the results, several limitations have been noted. These may be summarised briefly as follows :

(1) Assumptions of random sampling are difficult to fulfil in respect of items and examiners;

(2) Appropriate statistical formulae may not be available for different types of question-papers;

(3) Even when other conditions are fulfilled the formulae will give the required estimates only when all the data (item-wise scores of all the examinees) are analysed.

The last difficulty mentioned above is experienced even when scaling is attempted to bring the marks awarded by different examiners at par by equating them in respect of mean and standard deviation as suggested by Taylor (1963). The adjusted marks of students can be determined only after the marks are received from all the examiners and means and standard deviations are calculated for each set.

In addition to these difficulties there is also another point to be noted. Assuming the conditions of matrix sampling are satisfied the margin of error in the estimates of true scores may be fairly large especially when very few questions constitute the paper and inter-examiner reliability is low. The error is large when the test reliability is low, as it becomes a product of the content reliability of the test and the correlation between marks assigned by two examiners (Harper, 1963).

When the margin of error in estimation is large, one thing becomes obvious. Instead of assigning-scores to the examinees, they may be grouped in a few broad categories, so that no undue importance is attached to scores

(or even estimates of true scores) of the individual students, which are so fallible indices of their real ability. The results may then be in terms of letter grades A, B, C, etc. This is not to suggest that the examiners should assign letter grades to the examinees, for then the chances of error will be large. The examiners should give numerical scores as they do at present, which may be converted later into letter grades when results are announced However, the inter-examiner variability in award of numerical scores can be reduced if questions are of short answer type and many, and model answers, are provided to examiners
should be done will help in achieving a
Also there is a need to publicise how
rent types of answers to the same question. This will help the candidates also in avoiding certain pitfalls in answering questions They often have the knowledge but cannot write answers which are concise and to the point.

For scaling the marks of different examiners, a very useful suggestion on use of letter grades has been made by Dandekar (1968). He has suggested that first the answer-books may be rendomly assigned to examiners to be marked in the usual way Then the answer books marked by each examiner may be ranked in decreasing order of marks from highest to lowest. Next, letter grades may be assigned to each examinee on the basis of whether he is among the top 1%, or the next 4% group or in some other such group It may be decided in advance what percentage range would constitute different groups and which letter grades should correspond to them. In this process of deciding the grades of candidates, the practical difficulties in scaling of marks by equating means and standard deviations of different examiners are not encountered Apart from the practical difficulties the distribution of marks awarded by two examiners may differ not only in respect of mean and standard deviation, but also shape parameters (*e.g* skewness and kurtosis). The procedure suggested by Dandekar statistically resolves this problem also Finally, the letter grades in different subjects may be combined to arrive at an over-all letter grade. This may be done by using suitable statistical procedure (such as of normalisation) for assigning nume-

large margin of error But if the letter grades are based on numerical scores, there will always be a greater chance of misclassification for border line scores. For example, if 1% students get scores above 90 and 4% get between 80 and 89 and the letter grades for these two groups are A1 and

cations of misclassification, it would be desirable that the categories or letter grades are not v.ry few. They should not be less than 5. Of course, at the crucial dividing points such as those which determine 'pass' and 'fail', it would be quite desirable if for the students in a certain range of marks near the dividing point either a new examination is arranged, *or failing that, their* answer-books are re-examined by two or more examiners so that their

actual position is more accurately determined. Also grace-marking based on standard errors of measurement provides some safeguards to students from being unjustly failed.

SUMMARY AND CONCLUSIONS

An accurate scaling of results is possible only when the scores in an examination are perfectly reliable. As that is an impossibility, one can only try to arrive at the best estimate of a candidate's true score by statistical procedures. These procedures are valid only when certain conditions about sampling of items, examinees and examiners are satisfied.

The possible improvements in scaling and estimation of true scores have two aspects :

(1) improving the conditions which are needed for validity of statistical procedures;

(2) de-recognising the importance attached to numerical scores.

For (1), there is a need for modification in paper-setting procedures (by introducing a system of setting papers by random selection of items from a pool) and for assigning answer-books at random to examiners for evaluation. For (2), the practice of assigning letter-grades to students inst ad of numerical scores needs to be adopted. Scaling of the marks of different examiners can be carried out by adopting a procedure of ranking and assigning letter-grades, as described by Dandekar (1968).

These suggestions if followed are expected to bring about considerable improvement in the accuracy of examination results. Some ideas have already been tried in som: places like Gauhati. Actually there is need for more and more experimentation in this area and for shedding of the rigidity and conservatism responsible for adherence to existing examination practices in the Boards and Universities.

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Borderline Cases in Examination

V. S. MISRA

INTRODUCTION

...some minimum mark is fixed in every paper. ...task and a mini-... ...ibulated, many ...iled in one or two papers by a narrow margin ...h cases because ... fallible, we feel that it is just probable ...e or two papers due to the fallacy ... that a candidate should fail the examination not for his fault but ... e fault of the exmination. Some candidates who under the prescribed rules would have faild, are therefore allowed to pass often by giving grace marks. The rules for the "grace ... Thus a question arises: can we find some ... cases? What follows is mainly ... l Harper and Misra (1970).

COMPONENTS OF OBSERVED MARK

The components of the observed mark of a student are: true mark, constant error, and random error. By true mark is meant the mark which ... Constant errors are those where an examiner ...

discussed in another paper (Misra, 1971) ... discussion we would therefore assume that constant errors have been removed by scaling and it is only the random error that remains in the ob-

served marks and has to be considered for dealing with the borderline cases.

NATURE OF RANDOM ERRORS

Random errors are those which are sometimes positive, sometimes negative, sometimes small, and sometimes large. If the amount of random errors involved in the observed marks of a student were known, we could decide who should pass the examination. Unfortunately we cannot know this none the less we can estimate the size of random error for a group, and find out for a candidate the probability of failing in a paper due to such error.

Random errors, as the name indicates, are governed by the law of chance. That is, due to random errors the chance of failing in one paper is higher than in two papers. To illustrate, if due to random errors the chance of failing in one paper is 1/5, the chance of simultaneously failing in two papers is $1/5 \times 1/5 = 1/25$, and in all the papers of a six-paper examination is $(1/5)^6 = \frac{1}{15,625}$. This means that there is only one chance out of 15,625 that a candidate has failed in all the six papers by random error though his true mark is a "pass" in every paper. However, this also means that out of 15,625 such cases, 15,624 are genuine cases of failure. We have no means to find out which particular case in the big lot of 15,625 has failed due to random error. We would therefore prefer failing all the 15,625 candidates to passing all of them. But if we were to discover that out of 100 cases, 99 have failed due to random error; we would certainly prefer passing all the 100 cases to failing all of them. But, then, where to fix the limit between the two extremes ?

SOLUTION

We know it for certain that if all the candidates of an examination are examined again, in every paper many of those who passed in the first examination would fail in the second, and many of those who failed in the first would pass in the second. This is due to the unreliability of the present system of examination and this will continue till our examinations are made perfectly reliable. But this is hard to attain. The minimum precaution therefore an examining body ought to take is to allow all such candidates to pass who have the same chance of passing, if examined again, as the one who has just passed the present examination. To illustrate: suppose a minimum of 33 marks is fixed to pass a paper, and a candidate C gets 33 marks in every paper. C would therefore certainly pass the examination. We can estimate for C the chance, *i.e.* probability of passing fairly if he were examined again. Then in the interest of justice we should pass all the candidates who have the same probability of passing on re-examination as C. To find such candidates we have to estimate (i) the size of random errors for every paper, (ii) the pass probability for C, to be hereafter called for the sake of convenience the "minimum pass probability", and (iii) the pass probabilities for the borderline cases.

SIZE OF RANDOM ERROR

Studies done in India suggest that average random error for a paper

of traditional essay test is of the order of at least 7 marks (out of 100) (*see* Appendix A).

MINIMUM PASS PROBABILITY

The mini [illegible]
is .5279 (*see* [illegible]
examination, [illegible]
papers in the examination. For instance, the minimum pass probability for a *six-paper examination is* $(.5279)^6 = 2.16\%$ *and for a seven-paper* examination $(.5279)^7 = 1.14\%$.

PASS PROBABILITY FOR A STUDENT

The Unit has published a Table "Examination Passing Probabilities" (Appendix D) from where these probabilities can be directly read. How to read the Table is illustrated below: suppose there are six papers in an examination and the minimum marks required in every paper to pass the examination are 33. Suppose also that the observed marks of a student are 40, 24, 37, 33, 29, 39.

Step One: Note down the observed marks, the minimum pass marks, and the differences as shown below:

Observed Marks	40	24	37	33	29	39
Minimum pass marks	33	33	33	33	33	33
Differences	+7	−9	+4	0	−4	+6

Step Two: Read the pass probability from the Table as illustrated below:

In the Table the differences are noted in the first row. For reading the Table start from the highest difference and then proceed in the descending order of the differences. Our highest difference is +7, so we shall start from +7. The first step is to look in the column marked +7 and read the first entry in the column. (In our case this is .85) The second highest difference is +6. Hence, next move down to the row marked .85 and read the value in the column headed +6. (In our case this value is .70.) Next, move down to the row marked 70 and read the value under column +4. (This is 51 in our case.) Next, move down to the row marked 51 and read the value under column 0. (For us this value is 27). Next, move to the row marked 27 and read the value under column marked —4. (This value is 8.) As soon as an entry less than 10 is reached, it should be multiplied by 10 and the calculation carried back to the top. Because our value has come to 8, we multiply it by 10 (*i.e.* 8× 10=80) and see in the row marked 80 in the column headed —9. This value is 9. Since we got this value after multiplication by 10, the actual result should be considered as 9 divided by 10 (*i.e.* 9/10=9%) or .009. This is just what we get by actual calculations in Appendix A.

The whole procedure looks quite forbidding but in practice it is very simple. For calculating pass probabilities we should consider only those cases who have secured the minimum marks required on the aggregate but failed in a few papers. For those who have not obtained the minimum on the aggregate, the pass probabilities will always be lower than the "mini-

num pass probability". Hence there is no need for reading pass probabilities for such cases. Further, *Step One* may very well be done in mind rather than on a separate sheet of paper and for *Step Two* we need not calculate the probabilities for all the differences. The probabilities become smaller for the succeeding difference; so as soon as the observed probability for a candidate becomes lower than the "minimum pass probability" fixed for the examination, one should stop further reading of the Table. Our experience shows that one adept in handling the Table will hardly take 30—45 minutes time to dispose of a batch of 1,000 examinees.

POSSIBLE EFFECT OF THE APPLICATION OF THIS METHOD

In the present system of examination the candidates whose true marks in every paper are just on the pass line or slightly above it are most likely to fail the examination because due to the very nature of random errors, their achievement will most probably be under-rated in a few papers. However, those students whose true marks are just below the pass line are most unlikely to pass because their achievements have to be over-estimated in all the papers to enable them to pass. This has due to the nature of random errors negligible probability. Thus the overall effect of accepting marks as absolute measures is that the number of pass-deserving candidates who fail the examination is much larger than the number of fail-deserving candidates who pass the examination. If we employ the proposed procedure dealing with the borderline cases, more students will pass and probably these would be the ones who ought to pass the examination.

DISCUSSION

It may be observed that if all the papers are supposed to be measured of the same ability, then the aggregate marks of a student rather than his marks in individual papers are more dependable. However, so long as we insist on a minimum achievement in each paper, the present approach seems highly valid for dealing with the borderline cases.

It may be emphasised that the proposed method is not based on any compassionate grounds, as is usually the case with the award of grace marks. In this method, only those students are allowed to pass who on re-examination stand the same chances of passing as the candidate whose observed marks are just the "Pass Mark" in every paper.

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APPENDIX A

ESTIMATE OF RANDOM ERRORS

In the present context we want to know the magnitude of the differences between the scores of students if they are examined again using a parallel test. The standard error of such differences is called the "standard error of substitution". A practical method for estimating standard error of substitution is to administer two parallel tests (say A & B) to the same group of students after an interval of say 7—10 days and get each set of scripts independently examined by two competent examiners (say examiners X & Y for test A, and examiners P & Q for test B). The mean intercorrelation between the scores of examiners of parallel tests (*i.e.* the mean of r XP, r XQ, r YP, and r YQ) may be considered as the best estimate of the reliability of each parallel test. Note, for taking mean of the r's, convert the r's to z's, take mean of the z's and then convert the mean z to r. The formula for converting r to z is:

$z = 1/2\ [\log e\ (1+r) - \log e(1-r)]$ (Transformation of r into Fisher's z) (1)

However, in most cases the conversion can be made by the use of standard tables. The mean of the four variances (*i.e.* the variances of the marks of examiners, X, Y, P, and Q) may be considered as the best estimate of variance of each parallel test. The standard error of substitution is given by the formula

$SES = sx\sqrt{2(1-r\ xgxh)}$ (Standard error or substitution) (2)

Where S.E.S. is the standard error of substitution, sx is the standard deviation of the scores (in our case it is the square root of the mean variance of the four markings), and $rxgxh$ is the reliability of the test (in our case it is the mean intercorrelation of the four examiners of parallel tests)

The present author is not aware of any Indian study which satisfies the conditions for the estimate of the standard error of substitution nor has he come across any study where the standard errors of substitution for traditional essay examinations are reported. A few studies done by the present author have shown the following figures for class X standard:

Paper	S.E.S. (out of 100 marks)	N
English (Prose & Poetry)	11 04	129
Geography	12 08	98
History	8 23	45
Mathematics	13 35	119

*Parallel tests are such where it does not matter whichever test results are used That is both the tests are built by the same procedure and to the same specifications, both are examined by equally competent examiners and the raw marks on both are scaled to the same mean and dispersion.

In History the sample size was small (N=45). Every statistician knows that standard deviation tends to be smaller for smaller samples. The reason is that the extreme cases on which the magnitude of standard deviation mainly depends are most likely to be left out in small sampling Since the S.E.S. is directly dependent upon sample standard deviation, the value of the S E S. for a small sample is likely to be small. This is a probable reason for the small size of the S.E S. in History.

It is obvious that for many papers we do not know the values of the S.E S Even the values reported above need to be verified by further research. It is suggested that every

university should carry independent research to estimate the values of the S.E.S. for various papers of an examination. However, in the meantime it seems reasonable to assume that the value of S.E.S. is at least of the order of 7 marks (out of 100) in every paper.

APPENDIX B

ESTIMATE OF MINIMUM PASS PROBABILITY

The following procedure is described for those who want to know how the minimum pass probability is to be calculated:

Step One: Find out the normal deviates for all the papers of the examination. The formula for the estimate of the norma deviate is:

$$\text{Normal deviate} = \frac{X - X}{\text{S.E.S.}} \tag{3}$$

Where X is the observed marks of the candidate who just passes a paper (as already stated on page 2, we have taken this value to be 33 marks).

X is the minimum mark expected to pass a paper in the parallel examination (this will be 32·5 in the present cases*), and

S.E.S. is the estimate of the standard error of substitution (this, as already explained in Appendix A, is 7 in our case).

Inserting 33 for X, 32·5 for, X and 7 for S.E.S. in formula (3) (*i.e.*, $\frac{33-32\cdot5}{7\cdot0}$)

We get the normal deviate equal to +·07.

Step Two: Find the proportion or the area lying under normal distribution for the normal deviate obtained in step one. This can be read in any standard table. *Biometrika Tables for Statisticians. Volume* I (p. 104) shows this to be ·5279032, say ·5279, for a normal devite of +·07. In our case this is "the minimum pass probability" for one paper.

Step Three: Multiply the "minimum pass probabilities" for all the papers of the examination. In our case ·5279 has been found as the "minimum pass probability" for every paper. (This is because we have assumed the S.E.S. to be the same for all the papers. If the S.E.S.'s are different for different papers, the "minimum pass probability" will differ from one paper to another). Thus for the six-paper examination the "minimum pass probablity" will be (·5279) (·5279) (·5279) (·5279) (·5279) (·5279)—·02164 or 2·164%.

*We take 32·5 and not 33·0 as the minimum marks required to pass a paper in the parallel examination. The reason is that 32·5 is the lower bound of 33 marks. That is, if a student gets at least 32·5 marks in a paper of the parallel examination his observed marks without exception will be rounded to 33 marks and he will pass the paper.

APPENDIX C

ESTIMATE OF THE PASS PROBABILITY FOR A CANDIDATE

It has already been stated in the paper that the easiest way to find the pass probability of a candidate is to use the Table published by the Unit. However, for those who want to know how the pass probability is actually calculated the following procedure is described:

Step One: Write the observed marks of the candidate, the lower bound of the mini-

mum pass mark (why we take the lower bound of the minimum pass mark rather than the minimum pass mark itself has been explained in the footnote of the Appendix B) and the differences between the two as shown below:

Paper	I	II	III	IV	V	VI
Observed Marks	40	24	37	33	29	39
Lower bound of the minimum pass marks	32 5	32 5	32 5	32 5	32 5	32 5
Differences	+7 5	—8 5	+4 5	+0 5	—3 5	+6 5

Step Two: Divide the observed difference for each paper by the S E S. for that paper. This gives the normal deviate. To illustrate, for Paper I the observed difference is +7 5 and the S.E S. is 7 0 (Note, we have taken 7 0 marks as the S.E S. for every paper) The normal deviate is therefore $\frac{7\ 5}{7.0}=+1\ 07x$

The normal deviates for other differences may be calculated in the same way The results are given in the first row below. Next, read the area lying under the normal distribution for each normal deviate from any standard table. These are noted in second row below.

Paper	I	II	III	IV	V	VI
Normal deviate	+1 07x	—1 21x	+0 64x	+0 07x	—0 50	+0 93
Area under the normal distribution	86	11	·74	53	31	82

Step Three: Multiply all the probabilities found in the third row above That is, (86), (·11) (·74) (53) (31) (82)=0 009431. This is approximately 009. Note, we got the same figure for this case (P. 3 from the Table "Examination Passing Probability"). This probability is lower than the minimum required for our purpose, so the candidate should fail.

Grading

R. SRINIVASAN

WE WILL HAVE to concede that the external examinations will have to be kept for a long time especially when most of the universities are of the affiliating type and numerous colleges of widely varying standards go to constitute the universities. The problem, therefore, is to think of ways and means of holding external examinations in such a way that their adverse effect can be reduced considerably. Though we may agree that the measurement of final competence at the end of the year is the most crucial one, objections to dependence on such evaluations only can be raised by pointing out that :

(*i*) it is impossible to appraise certain types of competence within the limits of the scheduled examinations;

(*ii*) the sample of behaviour which is obtained in the examination of a short period is small and the reliability of the appraisal will be consequently restricted. In arriving at a proper assessment both quantity and quality of evidence must be assured if the reliability of measurement is to be maximum;

(*iii*) a sample which is limited in time may also do injustice to some individuals. Performance in a particular day and at a given time may fail to represent the usual level of their ability. To place exclusive emphasis upon evaluation at a single point in time may be harmful:

(*iv*) performance under stress or examination pressure may fail to represent the individual competence under more relaxed and normal life conditions, stress varying from person to person; and

(*v*) the final terminal examination may also produce unwholesome practices in teaching and learning activities in class rooms.

It is therefore necessary to examine whether it will be worthwhile to have more than one terminal evaluation for a proper appraisal of students'

achievements. *Though continuous evaluation will be highly effective it may not be practicable when centralised examinations are in vogue.*

Another approach would be *to bring about improvements to the evaluation methods.* [illegible]
continuously seek [illegible]
and samples of pe[illegible]
The assumption is that the more we know about a person and the more accurate the appraisal is, the more likely we will arrive at a sound decision about the person. To know a person means to be able to describe him accurately, objectively and fully and for this certain attributes for description have to be chosen relevantly. The more precise and quantitative the data are the more we are in the right track The major steps in evaluation therefore will have to be:

1. identification and definition of attributes or characteristics involved;
2. development of certain operations by which the characteristics are made to manifest themselves; and
3. establishment of a set of procedures or categories for translating observations into quantities.

The qualities with which education is concerned can be measured only when some precise definitions are made and units of qualification of such characteristics are provided. Strictly speaking selection of equivalent tasks and consequently establishment of uniform units in educational testing are difficult to achieve. At best a measurement can only provide information (varying in degrees of accuracy) and not judgments. Experience, training and insight are required to make conclusions based on the information provided by the test in the form of scores or marks. Information provided by any measuring device is limited by the nature of the instrument itself. We assume by a test that :

1. it occurs at a specific time and place,
2. it consists of a set of tasks uniform for each person tested;
3. it is seen and acted upon as a test situation by the persons who take the test; and
4. as it leaves a permanent record by way of answers on answer-sheets or definite products produced, it increases the objectivity and reliability.

Though the essay type of examination suffers from serious defects which are well known to educationists much can be done to improve its quality. For improvement, the following guidelines are suggested:

1. Keep the instruction cum test blue print in front while composing your questions. The blue print should serve as a masterplan to draft the test exercises sufficiently in advance and allow sometime to elapse.
2. A fresh review of the questions will suggest meaningful alterations.
3. Have the test exercises examined by a few subject specialists. Compare your model answers and theirs which are independently prepared so that the questions can be changed suitably to gain objectivity.
4. To realise the potential of a good question it is necessary that the question is carefully phrased so that it requires the student to reveal the kind of abilities which the test is supposed to elicit.

5. The questions are not only to be worded appropriately but the situation should be so structured that other factors do not come into obscure proper appraisal.
6. Use novel material or organise material in different structures to prevent exact reproduction from books and notes.
7. Begin essay questions with such words as compare, contrast, criticise, differentiate, illustrate, explain and give reasons for, so that the task is clearly specified.
8. Questions dealing with controversial issues should ask for the presentation of evidence for a particular position.
9. For purposes of effective comparisons it is necessary that all students are asked to answer the same questions.
10. In giving several essay questions try to have a range of complexity and difficulty and also specify the maximum score for each question. It is not necessary that all questions should carry equal marks.

RELIABILITY OF SCORING

It has been found that the analytical method has distinct advantages over the impressionistic, wholistic ones. If the total score for an essay is based on several distinct characteristics, the scorer has to make proper judgement with respect to each characteristic included in the question. Analytical methods are found to give consistent scores from paper to paper and from examiner to examiner.

Standard sample answers may be provided under three categories (i) superior, (ii) average and (iii) inferior. These can be used as frames of reference for assigning a value in a seven point scale (above superior, superior, above average, average, between average and below average, below average, lower than below average or poor). Research evidence has shown that the sum of ratings assigned by several raters to an essay question represents a more precise measurement of a student's true ability than the rating of a single individual. The reliability of the score can be increased by pooling the scores allotted by different raters. Evaluation of all answers to one question should be done before going on to the next. By this the rater can maintain a more uniform standard of rating and avoid the halo effect. After scoring the answer to one question for all papers shuffle the papers before starting to score the next question to avoid the contrast effect. Strict maintenance of anonymity can remove considerable subjectivity in the form of personal bias. Where multiple evaluation is not possible, re-evaluation of a random sample of an appropriate size (say 10%) has to be undertaken by a team of experts and in the light of the new evaluation the scores are to be moderated.

While marking other considerations might creep in and the question is often asked, 'Should marks represent a pure and accurate appraisal of competence in a segment of the curriculum as can be devised or should it be modified by other factors like neatness, legibility, effort put in, etc ?'. It would seem that most educational purposes would be best served by a mark that is pure and unadulterated. A grade that is a pure measure of competence has a unity of meaning that makes it interpretable and usable. If a single grade is to be given, it should represent a single thing which is the

[illegible] available estimate of competence in the field of instruction. What is [illegible]

presented in a mark or grade is to define clearly in terms of student behaviour what several objectives of the subject are and what relative emphasis should be given to each objective, so as to guarantee proper appraisal :

(*i*) determine the knowledge and skills that constitute competence in that field;

(*ii*) decide what weights should be given to each,

(*iii*) make clear what types of evidence will be accepted as evidence of this competence and determine what effective weights should be given to each component and handle the weighting of raw scores so that the desired weighting is in fact achieved;and

(*iv*) work out a negotiated agreement on a statistical meaning of the grading symbols in terms of percentiles or standard deviation scores of a defined group. It is normal to adopt a five point scale in grading on a statistical basis. When the distribution is defined we can assign:

Symbol	A=	+1.5 to +2 5 SD and above	7%
,,	B=	+0 5 to +1.5	24%
,,	C=	−0 5 to +0.5	38%
,,	D=	−1.5 to −0.5	24%
,,	E=	−2 5 to −1.5 or below	7%

As the number of discrimination points increases beyond a certain number, the number of borde [illegible] There is increased frequency of [illegible] decreased size of error. The a [illegible] reliability of the evidence. The final grade will certainly have an appreciable standard error of measurement If this error is large, relative to the unit in which the marks or grades are reported, many of the discriminations that are reported may be without substance or meaning.

[illegible]

error will be $7x\sqrt{1-1.80}=3.1$. So a person's score will differ from his [illegible] ...re will [illegible], when [illegible]

Even a well developed essay test cannot be a substitute for an objective type of testing. The word 'objective' refers to the scoring of answers and the choice of content and coverage of an objective test is probably as subjective as choice of these for an essay test. The essential features of an objective test are:

(1) the examinee operates within an almost completely structured task;

(2) he selects one of a limited number of alternatives;

(3) he responds to each of a large sample of items;

(4) he receives a score for each answer in accordance with a pre-determined key; and

(5) in certain cases he is given a penalty for guessing.

Since each item is brief, many items can be included and they can be spread more evenly over all the topics covered and more representative sampling can be obtained. This reduces the role of luck. As a consequence of the inclusion of a large number of separate items, the score from a well constructed objective test is likely to be more accurate, consistent and highly reliable than that from an essay test. Since the key is pre-determined in advance, bias is removed and scoring becomes mainly clerical and now-a-days mechanical devices are introduced to get immediate scores.

For the development of good items for objective tests adequate training and statistical insight are required. It should now become the main task of universities to organise evaluation departments with subject specialists and statisticians for developing parallel batteries of new type tests at different levels for various courses offered by the universities. Ultimately instruction, test item development and appraisal should proceed hand in hand and slowly these should become the major responsibility of class room teachers. Steps have to be taken to improve the competence of teachers at colleges for adopting new evaluation techniques. Experimental work and research can be organised in selected colleges and the scheme can be gradually extended to cover all the institutions coming under the university. A central coordinating testing department can be constituted for constantly improving, evaluating and regulating evaluation both internally and externally.

Three

Post Evaluation Jobs

V.S MUTHURANGAM

COLLATION AND TABULATION

Few preliminary suggestions :

1. Senior teachers do not come forward to do the tabulation work which requires experience and men of integrity. Some senior teachers, who come forward, find it difficult and embarrassing to do the work with their junior teachers. The work is laborious and unremunerative for the work and time spent by them To attract good and efficient teachers who can do the work smoothly and in quick time, remuneration should be increased.
2. The University Grants Commission or the Government of India should provide financial aid to the universities for the purchase of calculating machines for the use of the tabulators.
3. Financial aid should be given by the University Grants Commission or the Government of India for the appointment of qualified statistician to assist the tabulators.
4. The results moderated by the chief examiner of the subject/paper concerned, the board of examiners concerned and the results committee should not be revised.

For the above purpose, the university should prepare a time-table which should be adhered to :

(a) [illegible] be given to each valuer.

(b) The chief examiner should be asked to give a scheme of val

for the guidance of the additional examiners, within two days of the date of the examination. This scheme should be circulated to all the additional examiners on the third day of the examination.

(*c*) One chief examiner will not be able to review the valued answer-scripts of all the additional valuers if the number exceeds 15, in two days. So, the additional chief examiners should be appointed to review the valued scripts for a batch of 15 additional examiners, in the light of the scheme of valuation given by the chief examiner (paper-setter). The additional valuers should submit the valued answer-scripts in the examination branch and the chief examiners should meet at the office of the examination branch for review of the answer-scripts and to submit the final award lists of the examiners on the 12th day of the examination of the paper concerned.

(*d*) The date of the meeting of the board of examiners in the subject concerned should be the 15th day of the examination. At the meeting of the board of examiners, the chief examiner of the paper concerned should also be associated and make a detailed study of the paper and make a final recommendation of grace marks, if any, to the vice-chancellor.

The board should be satisfied with the following points :

(*i*) whether the standard of valuation has been maintained by the examiners in accordance with the scheme of valuation prepared by the chief examiner;

(*ii*) whether the valuation of any particular paper is stiff, after reviewing a few papers valued by the examiners;

(*iii*) whether the question paper is outside the syllabus, whether there is printing error, whether there is any ambiguity in the paper or whether there is any missing number or figure in the numerical questions/diagram. whether they have been kept in view by the examiners, and consider them with the opinion of the concerned heads of departments of teaching of the university, which should be made available by the office of the examination branch; and

(*iv*) whether there is any representation from the students or the principals (chief superintendents) of the examination centres regarding the standard of the paper and if so whether it is correct.

The board of examiners should make a final recommendation after taking into consideration of the above points and award grace marks or get them revalued by the examiners, suggesting to the examiners the line on which the revaluation should take place. When once the moderation of marks is made by the board, the same should not be revised.

(*e*) The office of the examination branch should provide the tabulators with the results' registers which should contain the name of the candidate, the name of his father, the subject in which the candidate has registered for the examination, the previous references, if any, of the candidate who is reappearing for the examination, the absentee statements received from the colleges and the roll number of the candidate who is suspected to have resorted to malpractices or unfair means at the examination. The results' register should also contain the full details regarding the examination, *viz.* the minimum passing marks in each paper/

subject, if any, the minimum aggregate, required the marks for the award of division, the rule for conditional promotion, the rule for saving of subjects, for the guidance of the tabulators for striking the results correctly.

(f) The tabulators should be asked to be present in the examination branch 26 days after the date of commencement of the examination to start the tabulation of the results as moderated by the boards of examiners of the subjects concerned. Wherever coding is done on the answer-scripts, de-coding should be done immediately after the submission of the valued answer-scripts, in the marks list by the tabulators.

(g) The teachers, who are appointed as tabulators, should not reject the offer of appointment of tabulators and they should think that this work is part of their normal duties and that the remuneration paid to them is only an honorarium.

5. The office of the examination branch should indicate the grace marks, if any, given by the boards of examiners, on the cover page of each of the marksheets of the examiners, before they are given to the tabulators for tabulation of results.

EXAMINATION COMMITTEE AND MODERATION OF RESULTS

To cover marginal cases, adjustment of marks from one subject to another, without altering the aggregate marks, subject to a maximum of 5 marks is made in any one paper subject.

SUGGESTIONS FOR IMPROVEMENT

1. In addition to the above provisions regarding the grace marks, the board of examiners should be given the following powers:

(a) If a question paper contains any error, or [illegible], the board should consider and give suitable consideration to all the candidates who have attempted that question.

(b) If a question paper contains any printing error or omission, the board should consider and give necessary consideration.

(c) If a question paper [illegible] choice, the board should be given [illegible] answers that could be given by the candidates [illegible] the paper and give due consideration.

(d) If a question paper contains questions [illegible] syllabus, [illegible] the board should [illegible] the grace marks.

(e) [illegible]

2. At present in the Osmania University, the results committee as constituted by the Ordinance does not have any power except to approve the publication of results as recommended by the board of examiners. The results committee should be vested with some more powers as follows :

(*a*) The results committee should be vested with powers to moderate the results of the examination if the examiners and/or the board of examiners have not followed the instructions.

(*b*) The results committee should be vested with powers to moderate the results of the candidates who are on the borderline at the examinations, as follows :

(*i*) Adjustment of marks (one mark for each subject) equal to the number of subjects for the whole examination should be given to all such failed candidates who have appeared in all the subjects or 5 or more subjects and have secured the required aggregate, provided the maximum number of marks to be adjusted in any one particular subject shall not exceed five. The marks reduced from one subject should be added to the paper(s) in which the candidate has secured the lowest marks.

(*ii*) Adjustment of marks to the extent of a total of 5 marks should be given in one or two papers to the candidates who have appeared in more than two subjects but less than five subjects.

(*iii*) A maximum of five marks should be added by the committee, if this step helps the candidates—

1. to improve the division;
2. to complete the examination;
3. to get a conditional promotion;
4. to reduce the number of subject(s) for which he has to appear again.

(*iv*) Wherever there is provision of sessional or class-test marks, the marks for the candidates for the re-appearance for a second time should be carried over, if the sessional marks are beneficial to them or the marks proportional to that obtained in the theory examination papers should be awarded.

N.B.—The aggregate should be inviolable except in the cases where it is necessary to alter it to the minimum extent, to improve the division or awarding a pass or a promotion or enabling a candidate to save certain subjects.

(*v*) In the case of postgraduate examination, where there is no minimum for pass in individual subject/paper and where there is double valuation, a maximum of five marks could be added by the committee to enable a candidate to completely pass the examination or improve the division. In this case, the candidates who have secured the first division or second division on their own merit, should be classified above the rank of such marginal cases of candidates, recommended by the results committee.

N.B.—For purposes of the above rules, the subject should be taken to mean as either a theory or practical.

In the case of the postgraduate examinations, the university heads of departments of teaching who are professors of the subjects should be associated to get the papers valued early by the internal and external examiners and to moderate the results of the examination so that the delays in the publication of the results can be avoided

) It is seen that the board in the Osmania University has no powers at present to review the scripts of the practical answer-scripts of any examination. There has been of late complaints of some examiners being partial. The board should be vested with powers to review the marks awarded by the practical examiners so that such complaints can be examined by the boards.

(e) There must be uniformity in rules in the moderation of results of the examination, so that the tendency on the part of the candidates to appeal or represent and get the results remoderated after the publication of results can be avoided.

LICATION OF RESULTS

In the Osmania University the results are published one week after the ite of the meeting of the results committee, after tabulation of results, icorporating the recommendations of the results committee The results ire sent to the Director, Department of Information & Public Relations, Government of Andhra Pradesh, Hyderabad, who makes arrangements to get them published in all the local dailies. There is always a complaint that the results are delayed by the examination branch

SUGGESTIONS FOR EXPEDITING THE PUBLICATION OF RESULTS

1. As suggested elsewhere, a time-table should be prepared for the despatch of the answer-scripts to the examiners, the date of issue of the scheme of valuation by the chief examiner to all the additional examiners, the reduction of the number of scripts to each examiner, the appointment of additional chief examiners for review of the valued answer-scripts, the return of the valued scripts to the examination branch, the duration of the pre-scrutiny, the date of commencement of the tabulation, the date of the meeting of the board of examiners, the date of the meeting of the results committee, the duration of the preparation of the result-sheets, the mark-sheets and this time-table should be followed strictly The results should be published within 45 days from the last day of the theory examination. The dates of the practical examinations should be arranged well in advance in consultation with the principals of the colleges and completed within 45 days mentioned above.

2 In the case of examinations for the master's degree, each answer-book is valued independently by two persons of whom one is an externa examiner. Where there is a disparity of marks in the award between th two independent valuers to the extent of 20 or more, the third valuer is ap pointed. Where there is no disparity, the average of the two examiners taken for tabulation This process of taking the valuation of the two three examiners takes more time and delays the publication of results. Th should be joint valuation instead of independent valuation to expedite results. In this case the moderation of the results by the boards of examir

can be dispensed with. This will cost the university, as the university will have to bear the T.A. and D.A., otherwise, there should be independent valuers drawn from the university itself instead of the external examiner, even though the paper may be set by the external.

3. In some examinations like engineering, technology, education, the sessional marks from the colleges do not come in time. Sometimes, it looks as though there is tendency on the part of some institutions to send the class test marks/sessional marks after knowing the marks of the individuals at the theory examinations, which may lead to unhealthy competitions. The colleges should adhere to a time-table and send the above marks immediately after the last day of the instruction and in any case before the date of issue of the hall-tickets to the candidates for the university examinations.

4. For some examinations, the submission of dissertations/monographs/thesis form part of the results. The teaching assignments in the colleges should be so arranged that the candidates are able to submit the above immediately after the last day of the instruction in the colleges.

5. For some examinations, visit to places like Newspaper Offices, Museums, Archaeological Sites, Geological Survey, Industrial Organisations are a must for preparation of project-report and the marks awarded form part of the results. In this case also, the heads of departments of teaching of the university should prepare the time-schedule for all the colleges and inform the teacher concerned to arrange to forward the project-reports before the date of the commencement of examinations, to expedite the publication of university examination results.

6. At the end of the university examinations, the chief superintendents of the examination centres should send the complete list of the candidates who had appeared at the university examinations, for each day of the examination, the cases of malpractices, the plan of the examination hall.

ISSUE OF MARKS SHEETS

At present, in the Osmania University the marks-sheets are being issued to each candidate appearing at the university examination, after collecting a fee of Rs. 2/- per candidate, alongwith the examination fee. The marks memorandum is prepared by the teachers who are remunerated at Rs. 10/- for 100 marks-sheets. Additional marks-sheets are also issued by the staff of the examination branch, on collection of additional fee of Rs. 2/- for each marks-sheet for each examination.

SUGGESTIONS FOR IMPROVEMENT

1. Till the card system is introduced and till the mechanisation is implemented, the compulsory issue of the marks memorandum may be continued. The remuneration to the teachers is not attractive and since this job does not involve any technical work, the preparation may be entrusted to the administrative staff of the office of the registrar, examination branch and the other colleges, on the above rate and they be informed that they should complete the work of preparation of marks-sheets within one week from the date of publication of results and despatch to the colleges, so that the marks-sheets are available to the candidates at all the colleges on the 10th day of the date of publication of results. Now it is experienced that teachers who are appointed as memorandum writers are irregular with

[illegible]

[illegible] This word [illegible] in other [illegible] the [illegible] of [illegible] the [illegible]

EXAMINATION [illegible]

[illegible] level [illegible] is seen [illegible] keeping [illegible] for the [illegible]

[illegible]

(i) [illegible]

(ii) [illegible]

(iii) [illegible]

(iv) [illegible]

(v) [illegible]

(vi) [illegible]

(vii) [illegible]

(viii) [illegible]

(ix) [illegible]

stock of the printed question papers before supply to the examination centres.

(x) Used question papers of the earlier years for the use of the examiners, as a model, and for the use of the candidates for reference and for the use of the heads of departments of teaching, in case they desire to make any changes in the scheme of instruction or scheme of examination or pattern of question papers.

SUGGESTIONS FOR IMPROVEMENT

1. Steel almirahs must be provided to each college for safe custody of examination records and for this purpose the University Grants Commission or Government of India may give financial aid to each college.

2. The filing and indexing system may be introduced for systematic maintenance of records.

3. The college should be asked to maintain proper accounts of the examination stationery supplied to them by the universities.

4. Of late, it is seen that there is no security to the staff and the records of the university, as the students try to enter into the examination branch and disturb the staff and try to use unfair means. To avoid such tendency, full security arrangements should be provided as in the case of banks for the examination branch. There must be a liaison officer to hear the difficulties of the candidates, if any, and to redress them. There must be a recepion officer, security officer, and if necessary armed guards to protect the records of the university in the examination branch. The University Grants Commission or the Government of India should provide necessary financial aid to establish such units.

5. At present it is seen, that the moderators of the question papers or paper-setters do not get the prescribed reference or recommended books from the library, whenever it is required. For this purpose, the university examination branch should have a small library for maintaining the following materials :

(*a*) Syllabi of all the courses and schemes of examinations as approved by the academic bodies.

(*b*) Recommended or prescribed books (one copy) each for all the courses of the examination. When once these books are changed, the cancelled books can be sent to the main library of the university for the use of the candidates. A library-clerk may be appointed for the maintenance of this library. For this purpose, the Univesity Grants Commission or the Government of India may give financial aid on lines library grant to the university library.

B. MECHANICAL AIDS

The change-over from the age-old system to mechanisation will not be easy. The officials of the university, clerks, superintendents will have to be trained in the operation of these delicate and sophisticated machines. No doubt, the machines ensure accuracy, speed and efficiency and will prove economical as the number of candidates taking the university examinations are increasing year by year. The I.B.M. (International Business Machine) can be usefully utilised if the pattern of the examination is changed. The

Statistical Institute, Calcutta, will have to be consulted whether they will be able to train the officials of the university to operate these machines.

The machines cannot, in my opinion, be used in the universities with the present system of examinations. The method of evaluation has to be changed and the marks should be fed into the cards for tabulation of each result and for the preparation of the statistics of the results of each examination. The academic bodies of the universities should be consulted whether the pattern of examination question papers can be changed into objective type of questions with multiple choice.

To begin with, the totalling machines (computor type machines) may be provided to the universities by the U.G C. or Government of India Financial aid should also be given for the appointment of qualified statistical assistants in the examination branch at the ratio of 1 for 5,000 candidates, to operate the machines and to assist the tabulators for the tabulation work

In general, it should be accepted that the examination system depends more on the confidence given to the teachers, administrative staff and the trust on them to finalise the results, based on the present set of the examination pattern In case there is any one, in whom trust is lost or who does

examination pattern should not be changed, and all the staff should not be suspected.

The Inter-University Board had suggested to introduce the system of award of marks by symbols at the university examinations in all the universities

The difficulty is faced because admission is by marks and we cannot get relevant marks in the symbols.

So far as the Osmania University is concerned, this recommendation has not been accepted by the faculties except in the case of the faculty of education. Even in the faculty of education, this scheme has not been introduced If this pattern atleast is introduced, the task of tabulation and finalisation of results might be somewhat facilitated with the help of some set formulas

Post Evaluation Jobs

J.M. MEHTA

TABULATION

IN MOST OF the universities and examining bodies, the work of preparing the results is done by the university staff and/or by tabulators appointed by the university authorities from amongst the teachers. Ordinarily a period of about six to eight weeks is required between an examination and publication of its results. This work can be expedited if a larger number of examiners and tabulators are appointed. But in doing so there is a danger of sacrificing the uniformity of assessment and also of a larger number of mistakes creeping in at various stages of tabulation and in determining the final results. Speed need not be aimed at the cost of accuracy.

During the process of compilation of results, the administration has to be vigilant enough to ensure that no leakage of marks and results take place and utmost secrecy is maintained by the staff. (Once the result in a subject, i.e., the final marks are submitted by the examiners to the university the burden of maintaining secrecy is passed to the university office.)

MODERATION OF RESULTS

The practice of moderating the results by an examination committee or the faculty or a board of moderators before their publication, prevailing in some universities, needs to be dropped as it leaves scope for malpractices, favouritism and victimisation. Moderation of the results in the manner also delays the publication of the final result.

It is suggested that instead of moderating the final result of the examination, it is better to ask the chairman or a group of examiners, if there are a number of examiners in a subject, to meet and finalize the result in the subject by moderation, if necessary. The marks so arrived at should be entered in

the final result sheet and the result so prepared be published. This will reduce the incidence of leakage of examination results before they are published and eliminate some delay in publication of results.

It is also suggested that a set of rules be framed for automatic condonation, as are framed by the Bombay and other un

about any student agitation—as it is taking place now-a-days—on account of low percentage of pass at an examination

MECHANISATION

If a university decides to take the help of machines, it will be necessary to have some technical staff for operating the machines It will also be necessary to modify some of its forms and procedures The entire process,

mission to the examination, to

ılt, together with the form of

as to suit the machines. A

careful programming in respect of each examination will be necessary before computerising the process. If this is done the computer will not only prepare the individual results but will also be able to give statistical schedules and result-sheets which go to the press

Mechanisation also enables us to prepare individual mark-sheets and passing certificates accurately and speedily. It is found that the processing of results on computers is cheaper than manual processing and it ensures both speed and accuracy along with neatness.

PUBLICATION OF RESULTS

Usually the results of different university examinations are published on the dates which are fixed by the office in advance and are announced in

ed date in this manner. This system is found to be quite convenient.

The affiliated colleges and the public often demand for simultaneous publication of results in the colleges and at all centres of examinations. The postal difficulties, the college timings and the size and the standard of the news-papers published in moffusil area create more difficulties than give any advantage in publication of results.

PRESERVATION OF RECORDS

The last but not the least important is the work of keeping a systematic and up-to-date record of the different documents and registers connected with the examination.

The following records need special care and should be preserved and made available for reference for the period mentioned against each :

1. The final copy of the result sheet (2 copies) Permanent

2.	Passing certificates	Permanent
3.	Convocation lists	Permanent
4.	Question papers (some sets, say 6)	Permanent
5.	Mark lists from examiners	3 years
6.	Appointment letters and T.A. and remuneration bills	5 years
7.	Reports of examiners (subject-wise)	10 years
8.	Examiners cards (individual)	15 years
9.	Bills of expenditure at centres	5 years
10.	Statistics of examination results	Permanent
11.	Internal evaluation sheets received from colleges	3 years
12.	Cases of malpractices	10 years

The old records and other records can be disposed of after obtaining ecessary administrative approval of the authorities. The above records ould be in the custody of a responsible officer and every time a record is ken out for reference, proper entries in a special register should be made indicate as to when and why a particular document was taken out in order protect infringements of records.

Post Evaluation Jobs

S.B. SHAPETI

COLLATION

Although the individual examiners are required to exercise the utmost
the respective candidates
ess, they generally commit

1. Mistakes in totalling.
2. Entries of marks against wrong numbers
3 Marking absent candidates who have appeared for the examination and whose answerbooks they have assessed

To ensure absolute correctness in respect of the above four items, my university adopted, in 1963, a system whereby all the assessed answer-books at the examinations were got checked up question-wise and section-wise, as well as the totals, by specially appointed tabulators. The tabulators detected more than two thousand mistakes, a few of which were very serious ones—for instance, on the front page of certain answer-books marks had been entered against a question which had not even been attempted Suitable disciplinary action was taken against 55 examiners, including a few
Unfortunately, it
er of candidates
20% a year. It
proved difficult to get an adequate number of teachers to work as tabulators when qualified teachers were not available even for assessment. So, the number of assessed answer-books checked up by the tabulators has since been reduced over the years to 10% of the total number of books assessed

However, assistance is given to the moderators in each subject, who, while tabulating the marks in subjects with more than one paper or a paper and a practical, detect some mistakes which are corrected by them immediately. At this stage, scrutiny is undertaken to have a rough idea as to the quality of the performance of the candidates, specially in subjects like Mathematics, English, Physics etc., which are deemed comparatively difficult. I the result in a particular subject or subjects at an examination is too low, th moderators bring this fact to the notice of the university. At the time o moderation, they take this fact into consideration. They then apply th provisions of Ordinance 114, according to which a maximum of three grac marks are given in a head of passing carrying 100 marks, if a candidate ha failed by that margin.

On receipt of the mark-lists from the chairman in all subjects of a examination, the totals in each section and subject are thoroughly checked u and the reports on ex-students and absentees are scrutinised and the mis takes, if any, are corrected. The tabulation of results is then done by th office. After the tabulation, the failures in individual subjects are marked i red pencil, and all the entries in respect of all the candidates as well as thei totals are compared by a separate batch of the staff and mistakes correcte under the initials of the chairman.

EXAMINATION COMMITTEE AND MODERATION OF RESULTS

There was, till 1966, a results scrutiny committee for moderating resul at the examinations. On the basis of the statistical information regardin the percentage of results, the committee used to take decisions regarding th grace marks to be given to cases of marginal failure for a pass and for awar of class. Since the system did not have any objective basis, the committe was abolished and in its place three Ordinances have been adopted govern ing grace marks for pass and award of class.

(*a*) 0.114 empowers the chairman in different subjects at all exami nations to grace up the failures of candidates in individual papers by no more than 3 marks if the head of passing carries 100 marks and by no more than 2% of the maximum marks in the subject provided that it doe not exceed 8 on the whole, depending upon the number of maximum marks.

(*b*) 0.117 provides that students who secure more marks than th minimum in the aggregate at an examination, earn grace marks provide they have failed in only one or two subjects. A student earns the grac marks on the basis of the percentage he has secured above the minimu in the aggregate, *i.e.*, 1 mark for very 1% more than the minimum in the ag gregate, but not exceeding 10.

(*c*) 0.116 governs the award of grace marks for a class. A candida is entitled to get under this Ordinance a maximum of 10 marks for a clas depending on the number of marks he actually needs for a class.

The application of Ordinances 114 & 117 entails certain difficultie The university has, therefore, under consideration, a proposal to have a ne Ordinance in place of the existing 0.114 and 0.117. The proposal stipulate that 2% of the maximum marks at an examination may be given as grac marks for failure in not more than two subjects at an examination, provide that a candidate has not obtained less than 25% of marks in each of the tw subjects in which he has failed.

PUBLICATION OF RESULTS

First, a schedule [illegible] published in the [illegible] and a circular letter is sent to all the [illegible] appointed date, at [illegible] a.m., the results [illegible] simultaneously at the university office, [illegible] To enable the papers and the institutions [illegible] day and at the same time, copies of results [illegible] vance. The results are announced in the following [illegible]

(1) First Class.

(2) Second Class.

(3) Pass Class.

The list of candidates who secure the first ten ranks among the [illegible] ful candidates, is also published along with the results of the examination.

ISSUE OF MARKS SHEETS

[illegible] to higher courses in the institutions of all [illegible] Although the practice involves some expenditure to the university, the [illegible] and the public have come to appreciate this arrangement.

EXAMINATION RECORDS

The result sheets of examinations and the [illegible] of marks are bound and kept in safe custody [illegible] They are not accessible to any person [illegible] of these results, since any [illegible] of the records. But there are [illegible] marks in the [illegible] admission to higher courses [illegible] action taken [illegible]

MECHANICAL AIDS

[illegible]

Four

Auditing & Accounting of Examination Accounts

K.N. THUSU

THE ESSENTIAL FEATURES of scheme of governance of the universities laid down in their respective charters and in the Statutes framed thereunder have generally remained unaltered although at every level university government has tended to become more elaborate as the hierarchy of varied number of Committees testifies. No serious attempt has been made to diffuse the over-emphasized centralized decision making to appropriate levels to ensure better servicing of the authorities including their Committees in the absence of which; in effect, responsible and effective sustenance of the prime objectives of the universities cannot be expected.

During the last three five-year plans the development activities in the universities have tremendously increased the burden of the non-academic staff mainly due to relatively meagre allocations in those plans under this head. New diversified inter-disciplinary courses of studies have been added with the institution of new departments. Reforms in the system of examinations have been initiated and are being experimented upon. It is common ground that in major universities the volume of administrative work connected with conduct of examinations and its complexity have increased to such an extent in recent years that the present machinery is severely strained. At many vital points there is inadequate follow up. There is insufficient emphasis on individual responsibility and on the observance of time schedule. Delays in day-to-day business also occur frequently with increase in the tempo of development and in the range of administrative responsibilities. These problems have assumed greater urgency and, therefore, demand far-reaching changes in administrative structure, procedures and approach.

Contribution of the administrative units sustained by an effective organisational system in a university to its prime objects has to play an important part in the promotion of these objectives and to the well balanced

growth of a university. Apart from the well defined administrative procedures evolved for purposes of effective control it is necessary to have a *look at the present situation with reference to the structural complex and* the personnel manning the university offices

Registrar, a statutory officer, in the present context of the outmoded

[illegible]

tory functions, wherever such a provision exists, cannot, therefore, be delegated to any other functionary unless the statute itself is amended in order either to incorporate a provision for delegation or to delete the provision itself. In such a situation it would be possible for the registrar to attend under the eased conditions primarily to the academic administration of the university complex. In Delhi University steps have already been initiated to amend the statutes (since amended) and hold the controller of examinations responsible for the conduct of examinations It is a step towards the right direction especially when the financial administration had already been entrusted to a finance officer who functions under the vice-chancellor/ pro-vice-chancellor. In effect the university administration will have three divisional heads each responsible for the sphere of work under his charge.

Assuming that major universities as are required to arrange for examination *of a very large number of examinees possibly over 50,000 would on* review of their existing structure find it convenient to split the existing administrative complex into broad divisions and the controller of examinations

[illegible]

present set up which generally obtains not only in the universities but elsewhere also. Pyramid like structure of personnel manning the sections, clerks at the base, then assistants, senior assistant and with superintendent as the in-charge, tends to obstruct efficiency, conditioned further by adherence to rigid routine procedures with no scope for initiative or innovations. In other words the present system is a vertical structure in which any case has to go up through different levels. The decision taking level being at the top of the pyramid, so that not only does the case take a great deal of time to reach that level through other levels below but also many a cases ultimately reach one point for decision. It is here at the base that major reform is imperative and essential as an aid to the fulfilment of objectives in view.

Day in and day out recruitment of raw persons as clerks or as assistants with no training facilities available to them to deal with complex nature of work is a contradiction in terms in relation to objectives we have in mind The very purpose of ensuring speedy output with progressive sound base is defeated. Delegation of responsibility to lower levels in these circumstances cannot be thought of The result is that there is constant pressure on the higher category of staff not merely confined to important matters but with an overdose of routine matters.

The whole structure need not be vertical one but should consist of dif-

ferent self-contained units. Each unit should consist of an officer competent to take decisions assisted by other supporting staff. The officer can be a superintendent or an assistant controller or a deputy controller depending on the nature of work involved in a unit. There can also be other types of combinations according to the nature of work. The main point of change would be that :

(*a*) There should be self-contained complete units headed by officers competent to take decisions; and

(*b*) within the unit there should be no levels at all since the officer concerned would be the only level (to the extent responsibility is delegated to him) and the others merely more or less his personal staff.

It is inevitable that in a system of this type there will be an increase in the number of officers and a decrease in the clerical staff. There is, however, not much difference at present between an assistant controller and a superintendent in their experience, equipment or competence. Either can head a unit of the same type.

The physical location of the examination units is also a very important point which has a bearing in this system. The work to be handled being mainly confidential and allied in nature it is essential that each unit is located in the same place and contains all its own records. It is also essential that besides the work rooms for these units adequate provision is made for (*i*) storing of scripts in the manner as would make it possible to refer to these scripts (whenever required under the present system) without loss of time, (*ii*) storing of printed question papers and work room attached to it, and (*iii*) an adequate number of committee rooms for moderation of question papers and results.

It is my belief that such a system is bound to lead to a keen sense of competition and charged with the faith that there is always a better way of doing things and that every improvement is only one step towards further improvement. This would also leave us with the scope for simplification of work. Since it is visualized that sufficient discretion would be available to the unit heads in the matter of procedures of routine it will stimulate them with a sense of responsibility ultimately leading to self-critical analysis of the work done and thereby fostering a spirit of innovation.

There should be no objection to the external audit of the confidential transactions to be conducted by a deputy accountant general personally and satisfy himself on behalf of the audit on the following conditions :

(*i*) The deputy accountant general would do so in the presence of the vice-chancellor or in his absence the pro-vice-chancellor, if any, and the controller of examinations or the registrar, as the case may be.

(*ii*) The audit will not ask for any information in regard to the sources of printing.

(*iii*) The audit will concern itself with the rates of printing duly approved by the vice-chancellor orders placed for printing of question papers and the acquittal of the amount drawn and paid.

(iv) In regard to confidential payments made to persons engaged on confidential type of work, the audit will be mainly concerned to see and verify whether the amounts paid to such persons had been disbursed after due sanction by the appropriate administrative authority and the receipts were obtained for the payments made.

The examination branch should maintain a subsidiary cash book detailing therein, the transactions of the amounts received from the university for disbursement as confidential payment

Five

Conduct of Examinations—Ceylonees Experience

M.D G. ABEYRATNE

UNIVERSITY EXAMINATIONS ARE public examinations even in unitary institutions where no external students are permitted to appear. So much so that in a small country like Ceylon any rejection of a candidate, the non-receipt of the admission card and the time table in time, any prior knowledge of the questions and any mishap in the examination centre could cause newspaper head lines in the local press, letters to the editor, editorials and perhaps questions asked in Parliament from the Minister in charge of Education. All these factors contribute in no small measure to make the task of those entrusted with the conduct of examinations in certain circumstances a nightmare.

Universities have undergone considerable changes during the last seventy years and in the democratic system of society we live in, they function under the full glare of public inquiry and criticism. Universities, by and large, are public institutions maintained from the tax payers' money. The public have therefore a right to know and the universities have an obligation to ensure, that the examinations, which from the point of view of the candidate is a culmination of several years work, are conducted properly and without fear or favour. In this paper it is not intended to discuss the advantages or the disadvantages of a particular type of examination. It assumes that whatever be the type of examination, the administrator will be called upon to conduct it. The few points that are discussed in this article are for the purpose of helping the administrator who is called upon to conduct an examination, may be, for thousands of candidates living in various parts of the country. These are based on the light of our own experiences and it is hoped that the discussions at the seminar will help us to streamline our own system.

From the point of view of the administrator who has to rely on a large number of clerical hands; some with experience, some without, some on the permanent cadre of the university and others recruited casually to do a speci-

fied job, certain simple practical aids and checks are useful. When an office has to rely on the above mentioned staff and also deal with many hundreds of applications within a short period of time and working to a schedule, it is

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While the use of different colours prevents delay in the sorting out of applications, it is also necessary to ensure that the application form itself is not unduly large and cumbersome and that we *do not call for information that is not immediately relevant to the examination* The checking of eligibility and the typing of schedules can be made easier by confining the data the candidate is required to furnish to a single page. It is easier for the clerical staff to glance through a single page rather than to wade through number of pages containing several columns trying to extract the relevant information Such methods take time and tend to retard efficiency and mistakes are bound to occur The entry form can be drafted so as to confine it to a single page of a half sheet of foolscap

In Ceylon education is free from the kindergarten to the university. Fees are not charged from candidates who are sitting for an examination at undergraduate level on the first occasion. Non-citizens, however, are required to pay tuition and examination fees. Where a candidate sits for an examination other than on the first occasion he has to pay the prescribed fees.

Examination fees are not collected by the university office and normally *cheques, money orders and postal orders are also not encouraged* The instructions require the candidates to deposit the *fees in the name of the university at any branch of the Peoples Bank. The university has provided printed forms to the bank for distribution to its branches* Any person paying money to the university is required to fill up the paying-in-slip in triplicate. For a receipt to be authentic it must be signed by the Manager of the bank. One copy of the receipt is sent by the payee with the application and the other two copies are retained by the bank. The bank transmits a statement which gives the names of those who have made payment with the duplicate copy of the receipt to the Bursar This enables the Bursar to reconcile the payments

Once the applications have been received it is necessary to determine whether those who have applied are *eligible* to sit in the examination. The question of eligibility can be checked at different points depending on the scheme of courses and examinations adopted by a university. This would come up firstly at the time of admitting a student to the university. He must have fulfilled the admission requirements and passed the competitive examination prescribed for admission The University of Ceylon, Colombo is particular in selecting its students and the declarations made by them are very carefully scrutinised

the examination was due to commence. It was his personal responsibility to ensure their safety. This examination was conducted very well, but in 1964 in view of the expenses and in order to bring about some uniformity among the four universities of Ceylon, admissions were based on the results of the G.C.E. (Advanced Level) examination. What needs to be emphasised is the fact that while certain arrangements can be decentralised the printing of question papers and other areas of a confidential nature must be centralised.

It is very unlikely that most universities will have special buildings, as some western universities have, for the purpose of conducting examinations. It is, therefore, not practicable to have any pre-determined seating plans. Much would depend on the type of accommodation that is available. Lecture halls, tutorial rooms, theatres, can be used to conduct examinations and the seating arrangement would largely depend on the size and shape of the building used. It is. however, desirable to arrange the desks in rows leaving sufficient space between rows. This will facilitate the distribution of question papers and the collection of scripts. In arranging seats we tend to allow about 8 sq. feet per candidate. In certain types of examinations like for example map work in Geography we provide 2 desks to a candidate and much more space than for other papers.

The custody of examination material should be in the hands of the examinations branch of the university. This would include various kinds of stationery for the examination including the answer books, the applications, schedules, attendance sheets, admission cards, mark return sheets, the mark books and other relevant papers regarding the examination. These cannot and should not be left in a central record room or stores. Question papers and documents of a confidential nature must be in the personal custody of the staff officer.

It is very essential to detail a clerk from the examinations office for the sole purpose of distributing stationery to examination centres. He should be fully conversant with the requirements of the examination. Any special kind of instructions regarding the supply of graph paper, log tables, drawing and tracing paper should be given to him in advance. Similarly all materials including clocks required for an examination should be got ready at least two days before the examination is due to commence.

In recent years we have exercised a greater degree of control than hitherto over the distribution of answer books. Each answer book is date stamped with the official seal of the Assistant Secretary Examinations. This has been introdued in order to prevent the introduction of answer scripts written before hand.

The marking of attendance at an examination is equally important. There must be attendance lists in respect of separate subjects for each examination centre. We use printed forms for the purpose which have columns for the index number and for the marking of attendance. Those who are present are marked by a tick and those absent are marked 'absent'. One copy is enclosed with the packet of answer scripts and this enables the examiner to know the total number of absentees. The other copy is returned to the Assistant Secretary Examinations direct. This enables an independent check of the absentees. We go further in this matter. Special printed forms of the same size as answer books entitled "Absentee Forms" are supplied to each centre. If a candidate is absent for any reason whatsoever an absentee form is substituted in place of his answer script. This method

is helpful especially in cases where the question paper has to be answered in separate parts, each part being packed separately.

A few years ago we had the experience of the supervisor distributing at 9 a m. the question paper that was meant for the afternoon. This caused an unexpected emergency at the examination centre and adequate steps have been taken to prevent a recurrence
in examiations except a very rare case
emergency Emergencies cannot be
must be handled immediately and without loss of time by the supervisor and his team of invigilators If there are any mistakes in examination papers supervisors have instructions not to correct them but to report every such case. In an emergency much would depend on the resourcefulness of the supervisor and his invigilators and great care should be taken in their selection However, it is inevitable that the registrar in-charge of examination must be kept informed and consulted at every stage.

during the last few days before the examination, trying to do in few weeks what must have been done over the years. The university has its own medical centre with qualified staff to deal with emergencies of this nature. Since the general hospital is situated in close proximity to the university any urgent cases could be despatched to hospital atonce

This problem has not been adequately studied so far by our university. The increase in the number of candidates falling ill during the examination tends to show that special instruction on how to study will be of immense advantage to university students.

Supervisors and Invigilators are appointed by the registrar from the academic staff of the university Special consideration is necessary in the appointment of the supervisor Normally he is selected from among the members of the senior staff who have wide experience in conducting examinations. Active, unexcitable and calm and collected individuals are the best for this job

Supervisors have absolute control of the examination centre If in the opinion of an invigilator a candidate is guilty of disorderly conduct he shall warn him and if he persists in his disorderly conduct he can be exclud-

and report the matter to the vice-chancellor.

The invigilator is empowered to request any candidate to make a statement in writing on any matter which may have arisen during the course of the examination If in the opinion of an invigilator at an examination circumstances arose which rendered the examination unfair to the candidates he should report the matter to the vice-chancellor

No candidate is admitted to the examination hall after 30 minutes have passed from the commencement of the examination and no candidate may leave the examination hall until thirty minutes have elapsed after commencement of the examination

A candidate is issued an admission card giving his index number. He is required to write only his number in the answer scripts. No book

or paper or printed or written document other than those authorised by the registrar may be taken to the examination room, nor can a candidate receive such documents from another person while he is in the examination hall. The invigilators have been advised to enforce this even before the candidates are admitted to the hall. Candidates are permitted to enter the hall only from one entrance and under the direct supervision of two invigilators. They are advised not to take any books or notes to the examination hall. Once they have been forewarned any violators of this rule could be severely dealt with.

Where a candidate is found to be in possession of any such book or paper or documents he is deemed to have contravened the regulations unless the contrary is proved. No candidate shall read anything written by any other candidate or speak or otherwise communicate with any other candidate in the examination room or person outside the examination room. No candidate shall knowingly permit any other candidate to read anything written by him or to see any diagram or picture drawn by him, nor shall a candidate conduct himself so negligently that an opportunity is given to any other candidate to read anything written by him.

The conduct of an examination requires several confidential areas to be handled, before and after the conduct of an examination. The ball is set rolling long before the date of the examination, by getting the examiners appointed by the faculties and the Senate. The registrar circulates confidential instructions to the examiners requesting them to set their papers and to transmit them to him before a given date. The papers are scrutinised by a board of scrutiny appointed for the purpose by the faculty and the Senate. The maximum number on the scrutinising committee is 5. This committee is at liberty to modify any questions in respect of language or to refer any papers to the examiner with their suggestions regarding any questions that appear to be unsuitable or unsatisfactory. The registrar is the secretary to the scrutinising committee. It must be emphasized that this work must be handled by a senior staff officer of the examinations branch. This function should not and cannot be delegated.

As mentioned earlier examiners are appointed by the faculty and the Senate. At the conclusion of each examination the answer scripts are returned to the examinations office by the supervisors who are entrusted with the task of conducting the examination. These are distributed to the marking examiners immediately after they are received. As a general practice the scripts are not posted but are distributed in the university van to the residences of the examiners. This is done by a clerk attached to the examinations office who obtains an acknowledgement from the examiner concerned.

Confidential instructions are issued by the vice-chancellor regarding the method of marking and the manner in which the final marks should be returned. In all final examinations the scripts should be read by two examiners—one internal and the other external. It has been the practice to accept the higher mark provided there is no wide disparity in the marks of the internal and external examiners, if it is to the advantage of the candidate.

The marks are returned to the Assistant Secretary Examinations who gets the most experienced confidential clerks to enter up the marks. According to rules determined by the Senate the Assistant Secretary tabulates the results for the consideration of the board of examiners. Only the

border line cases are left for the consideration of the board. This does not however, prevent the board from going through the marks of all candidates to determine their results. This often happens, and, it is a desirable feature that cross checks are made at different points. The results as determined by the examiners are published by the registrar

The press in Ceylon publishes the results of university examinations. However, it is the obligation of the university to communicate to each candidate the results of his examination. It is worthwhile mentioning the fact that at the time a candidate applies for the examination two envelopes—one marked 'admission card' and the other marked 'results' respectively are issued to candidates. They are required to write their names and addresses, affix the postage stamps and return the envelopes with the applications. This has made matters considerably easier to us when sending the admission cards and the results Time is not wasted in writing out the addresses of candidates and there is also no expenditure to the university

The problems connected with the declaration of results raise an important question. As it is, in a given discipline, there are a few teachers who are directly involved in the teaching and examining in the subjects. Invariably the same teacher is called upon to assess the answer scripts of several examinations at the end of an academic year He may have a few hundreds of scripts for each of the first, final Part I and final Part II examinations. All these have to be assessed before a particular date Are our academics overworked in this respect and as a result do the answer scripts receive a fair assessment? If they don't what is the solution?

Having conducted the examinations of the Univers ty of Ceylon and of the University of Ceylon, Colombo, for over fourteen years, I begin to wonder whether the work that is put in by all, namely, the student, the teacher, the administrator and the expenditure incurred in making elaborate arrangements is worthwhile. Internal university students are admitted on the results of a competitive examination They receive instruction from experienced teachers, their progress is assessed in every tutorial they write, they are guided in their reading. Assuming that we have qualified and experienced staff, on whose judgement we could rely, cannot the progress of a student be assessed progressively during his 3/4 years stay in the university and a pass degree awarded without requiring him to sit for an examination. It must be made obligatory for those who rquire honours to sit for an examination

Conduct of Examinations

SARANJIT SINGH

ONE OF THE glaring defects in the present system of examinations is that the result is declared after 2 to 3 months of the holding of the examination. There are various reasons for this delay and the object of this paper is to suggest a way of reducing this time to the barest minimum. For this, the system adopted by the Indian Institutes of Technology at the joint entrance examination is commended.

The admission to the Indian Institutes of Technology, Bombay, Delhi, Kanpur, Kharagpur and Madras is based on the result of a common competitive examination called the joint entrance examination. Large number of candidates appear in this examination. Previously the total number of candidates used to be as high as 25,000 but recently this number has come down considerably. There are four subjects in which the students have to appear at the examination and the result is declared within four weeks of the last day of the examination. It will therefore be of interest to study in detail the mechanism adopted for this examination and see how it could be incorporated by other universities with some modifications to suit local conditions.

For the purpose of the joint entrance examination the country is divided into 5 zones. Each zone is attached to an Indian Institute of Technology. Each Indian Institute of Technology is then responsible for the conduct of the examination and preparation of the result in its own zone. After the last day of the examination the answer scripts of all the candidates in a zone are brought to the institute responsible for that zone. The answer scripts are then straightaway sent to the coder who is responsible for the preparation of the result. The coder, with his own team of highly trusted persons, allocates code numbers and then the scripts with the code numbers are sent to the respective head examiners in the subjects for evaluation. Each head examiner has his own team of evaluators and scrutineers. They carry out

the evaluation at the centre within 5 to 6 days and send the award sheets to the coder. When all the answer scripts in all the subjects have been evaluated and award sheets have been received the result is then tabulated and decoded. The zonal result is thus ready within 18 days of the last day of the examination. The result of all the zones is then brought to one Indain Institute of Technology by turn each year and an all-India Merit List is prepared. The result is then ready for declaration. The whole process is completed within 4 weeks A similar procedure if adopted by the universities will go a long way in decreasing the gap between the last day of the examination and the declaration of the result. The delay at various stages will be radically cut and the result can be prepared in a short time. In fact the last step of compiling the all-India result will not be necessary in the case of the university and it could very well mean a further saving of one week.

There are many obvious advantages in this system and some of these are enumerated below :

1 Coding is in the hands of independent persons who are not connected with the evaluation of the scripts

2. All the evaluators in a subject are to sit at one place under the continued presence of the head examiner The head examiner has already prepared a model answer (at the time of paper setting) which will be available to all the other evaluators in the room Each model answer has been sub-divided into distinct steps and each step is allotted marks Consequently, very little discretion is left with the evaluator and he can only err within very narrow margin This ensures uniformity in the standard of marking which at present, in some universities, is achieved by sample checks of answer scripts by head examiner or by two independent markers Obviously sending scripts by post and exchanging information by correspondence takes lot of time and still uniformity in marking cannot be achieved to the same extent as is possible by personal contact.

3. Greater participation by other examiners under the guidance of head examiner, besides imparting training, will remove some of the criticism that only a few persons are favoured with this so called remunerative work.

4 The short time at the disposal of the examiner minimises chances of any external influence affecting the assessment.

5. [illegible]

There may be some more advantages which can emanate from local conditions.

However, objections can be raised against the above system in the light of the background, of the systems prevailing in different universities. For instance, it may not be convenient to gather examiners at one place. That may look so at first thought but I do not think that this is an insurmountable difficulty. The same objection could be raised against the head examiner being asked to spend 5 to 6 days at one place for the examination of the scripts. This difficulty may arise in very few cases where the examiner comes from far off regions Generally the universities within a small

zone follow the same semester or academic schedule. As such many of the examiners will be available who could spare time and finish the job quickly.

I do not claim that this will be the cheapest and the most economical method of evaluation but I am confident that the cost difference between the above suggested method and any other method followed at present in any other university will not be large. Even if it is conceded that there is small economic loss yet it will be more than made good by the efficiency and saving in time which is ensured by the above suggested method.

I will therefore sincerely commend the above procedure for adoption by the universities. Once the principle is accepted then it will not be difficult to work out the details to suit a particular univesrity/institute.

The Indian Institutes of Technology are already using computer for part of the process and I am sure the universities will also be able to incorporate this technique later on in their system.

Conduct of Examinations

N K. DESAI

One of the most important work of the registrar's office is the conduct of examinations. All universities have prescribed under ordinance the date of receipt of application forms for each examination specifying fees etc. According to the ordinance on that behalf, circulars are sent to the principals of colleges to forward the forms of students who are appearing in various examinations.

The application forms are forwarded about two to three months before the examination commences and the terms are also not over by that time. All these forms are forwarded by the principal to the university during the term. After the close of the terms, the principals send attendance and ... sity There- ... mes this is ... to inform the candidate as well as senior supervisors appointed at the examinations *if the provisional admission of a candidate is to be cancelled.*

The second problem is of the eligibility of students migrating from other universities. These students are normally admitted to the colleges affiliated to the university provisionally on production of an evidence of passing the qualifying examination Confirmation of their admission depends on completion of certain additional formalities. Either the students do not *care to complete such formalities or the universities from* ... way of issuing certain ... icates etc. which are

As the majority of students who come from other universities fail to

the university office and disturb the office *during the peak season. Principals* of colleges should be requested to see that students studying in their colleges complete all formalities for admission to the examinations.

The examination section faces another problem, *i.e.*, late submission of admission forms by the principals. The forms come as late as one or two days before the commencement of examinations. By this time the office has already completed the *work of scrutiny of applications, their classification* according to centres and optional groups and subjects, allotment of seat numbers and printing of the list of candidates. The late receipt of applications increases the work for the examination section and disturbs the smooth working of examination machinery. Such candidates are to be *given seat numbers* and senior supervisors and examiners are to be informed about their admission to the *respective examinations. Principals of affiliated* colleges should be requested to see that no applications are forwarded after the due dates except under very special circumstances which the principal also should mention in their forwarding letters. The allowance of atleast a week should suffice for late submission of application forms after due dates.

As soon as the forms are received *in the office, they are to be classified* according to the *centres and optional groups and subjects. They are also* to be arranged alphabetically and given seat numbers. *Principals of colleges* at times do not see that their offices make a thorough check up of application forms and therefore much of the queries are to be solved by the examination section through the principals of the colleges. Students are also called at universitp *office for certain clarifications. If this work is done at* the college office properly, the examination section can prepare the statements giving full details regarding subjects in which how many students are appearing and how many students are claiming exemptions in various subjects without difficulty. Unless such statements are prepared and given to paper-setters and examiners in time they may not be able to do their work satisfactorily.

During this stage, *one unit of examination section is* busy in issuing appointment orders to paper-setters and examiners and receiving acceptance from them. They are also to be supplied with necessary stationery for the purpose. The paper-setters should also get the printed or cyclostyled copies of syllabi and text-books prescribed for the examination.The information regarding *the courses of study and text-books should be kept up-to-date.*

The manuscript should be set fifteen days before the examination commences. The paper-setter should co-operate in this work. At times they do not submit the manuscript in time and create an unseemly situation for the university. Sometimes paper-setters accept the appointment and refuse it at the last moment leaving the office very little time to make alternative arrangements.

In most of the universities, question-papers are printed on the day of examination. Very few universities get question-papers printed in advance. Residential universities do not have many problems in getting the question-papers printed, as they have only one centre. But affiliating universities have problems of getting question-papers printed at several centres. Such universities have to make arrangements of printing question-papers at many centres and at some places proper arrangements for printing them cannot be made. At such centres, the question-papers have to be carried daily

from the nearby centres where proper facilities are available. Examin
centres have to be approved at all places where colleges are situated.

The manuscripts are sent to the senior supervisors at all centres
they are made responsible for printing of question-papers at their
pective centres. Senior supervisors appointed at various centres are
responsible for other work relating to the conduct of examinations
MSS are sent to them three to four days before the commencement of exa
nation so that they can arrange to print the question-papers in the subje
concerned on the day of the examination

All the stationery required for the conduct of examinations is norma
sent to the principals of the affiliated colleges where the centres for exam
nations are located. The principal is asked to recommend a responsib
person from his college staff that will look after the examination materials
Affiliating universities are also having the problem of despatching the answer-
books to examiners. If the university has colleges within a range of few
miles and answer-books can be collected by evening at the university office,
it can despatch the answer-books on the next day, where the geographical
situation is such that the answer-books cannot be collected on the same day
or next morning at the university office it is advisable for the registrar's
office to see that the answer-books are directly sent to the examiners. In
that case the principal may be requested to recommend the name of some
responsible staff member of his college who can do such work efficiently and
with utmost secrecy.

The next important thing in the conduct of examination is the appoint-
ment of invigilating staff Some universities are appointing directly such
staff whereas others entrust that work to the principals of colleges where
the examinations are conducted. The best course for the efficient conduct
of examinations is to ask the principals of the colleges to recommend as many
names as are required and get it approved by the university The principal
should also be requested to recommend names of senior staff members
who could work as senior supervisors These senior supervisors should
appoint junior supervisors from the list approved by the university Prin-
cipals should be associated with each examination as senior supervisors as
they have better control over the staff of the colleges who are engaged in
supervision and other work relating to examinations at centres

Before the actual commencement of each examination, the university
must have an up-to-date information regarding the seating accommodation
that will be available in each college, such as the number of class-rooms
hat will be available, the number of students that could be accommodated
tc. On the basis of this information the registrar's office should arrange
or seating accommodation for the students in each college

Senior supervisors appointed at the various examinations at different
ntres should also be strictly instructed to see that the copy of the reports
ed in by junior supervisors of all blocks are forwarded to the university
ice. This record will be useful in knowing the number of students ap-
red in each subject at different centres It is also useful, in case, any
nplaint is received from the examiners

During the conduct of examinations, there are many chances of emer-
ies of an unpredictable nature creeping in There may not be any
left for the senior supervisor to contact the university. Under such
nstances, it is better to give some authority to the senior supervisors to

the university office and disturb the office during the peak season. Principals of colleges should be requested to see that students studying in their colleges complete all formalities for admission to the examinations.

The examination section faces another problem, *i.e.*, late submission of admission forms by the principals. The forms come as late as one or two days before the commencement of examinations. By this time the office has already completed the work of scrutiny of applications, their classification according to centres and optional groups and subjects, allotment of seat numbers and printing of the list of candidates. The late receipt of applications increases the work for the examination section and disturbs the smooth working of examination machinery. Such candidates are to be given seat numbers and senior supervisors and examiners are to be informed about their admission to the respective examinations. Principals of affiliated colleges should be requested to see that no applications are forwarded after the due dates except under very special circumstances which the principal also should mention in their forwarding letters. The allowance of atleast a week should suffice for late submission of application forms after due dates.

As soon as the forms are received in the office, they are to be classified according to the centres and optional groups and subjects. They are also to be arranged alphabetically and given seat numbers. Principals of colleges at times do not see that their offices make a thorough check up of application forms and therefore much of the queries are to be solved by the examination section through the principals of the colleges. Students are also called at universitp office for certain clarifications. If this work is done at the college office properly, the examination section can prepare the statements giving full details regarding subjects in which how many students are appearing and how many students are claiming exemptions in various subjects without difficulty. Unless such statements are prepared and given to paper-setters and examiners in time they may not be able to do their work satisfactorily.

During this stage, one unit of examination section is busy in issuing appointment orders to paper-setters and examiners and receiving acceptance from them. They are also to be supplied with necessary stationery for the purpose. The paper-setters should also get the printed or cyclostyled copies of syllabi and text-books prescribed for the examination.The information regarding the courses of study and text-books should be kept up-to-date.

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from the nearby centres where proper facilities are available Examination centres have to be approved at all places where colleges are situated.

The manuscripts are sent to the senior supervisors at all centres and they are made responsible for printing of question-papers at their respective centres. Senior supervisors appointed at various centres are also responsible for other work relating to the conduct of examinations The MSS are sent to them three to four days before the commencement of examination so that they can arrange to print the question-papers in the subjects concerned on the day of the examination

All the stationery required for the conduct of examinations is normally sent to the principals of the affiliated colleges where the centres for examinations are located. The principal is asked to recommend a responsible person from his college staff that will look after the examination materials. [illegible]

it can despatch the answer-books on the next day; where the geographical situation is such that the answer-books cannot be collected on the same day or next morning at the university office it is advisable for the registrar's office to see that the answer-books are directly sent to the examiners. In that case the principal may be requested to recommend the name of some responsible staff member of his college who can do such work efficiently and with utmost secrecy.

The next important thing in the conduct of examination is the appointment of invigilating staff Some universities are appointing directly such staff whereas others entrust that work to the principals of colleges where the examinations are conducted The best course for the efficient conduct of examinations is to ask the principals of the colleges to recommend as many names as are required and get it approved by the university. The principal should also be requested to recommend names of senior staff members who could work as senior supervisors These senior supervisors should appoint junior supervisors from the list approved by the university Principals should be associated with each examination as senior supervisors as they have better control over the staff of the colleges who are engaged in supervision and other work relating to examinations at centres.

Before the actual commencement of each examination, the university must have an up-to-date information regarding the seating accommodation that will be available in each college, such as the number of class-rooms that will be available, the number of students that could be accommodated etc. On the basis of this information the registrar's office should arrange for seating accommodation for the students in each college.

Senior supervisors appointed at the various examinations at different centres should also be strictly instructed to see that the copy of the reports filled in by junior [illegible] to the university office This recor[illegible]er of students appeared in each sub[illegible]feul, in case, any complaint is received from the examiners

During the conduct of examinations, there are many chances of emergencies of an unpredictable nature creeping in. There may not be any time left for the senior supervisor to contact the university. Under such circumstances, it is better to give some authority to the senior supervisors to

act according to his judgement. It is always advisable for the university to leave the problem of handling emergencies to the best judgement of the man on the spot. His decision should be considered as final.

The invigilators appointed at university examinations should understand that invigilation is an important factor in the successful conduct of examination and the efficiency of supervisors has a direct impact on the conduct of examinations. Senior supervisors should exercise utmost care and see that cases of malpractices are detected and reported to the university. They should take frequent rounds so as to make junior supervisors more vigilant. Students should not feel that they can bring anything that they like and can go on copying from books or written pieces of papers or from their neighbours. Junior supervisors should also fill in the reports efficiently and with due care. No mistakes should be allowed to creep in such reports. At times wrong reports may create a difficult situation for the university. A candidate who is present might have been marked absent and a candidate who is absent might have been marked present. At times the candidate may write a wrong number. A candidate might write more supplementaries than actually tied along with the main supplementary. He may tie blank supplementaries and deceive the university. All these things should be properly reflected in the reports.

Where the university has no direct control over the examination centres, it is worthwhile to appoint a few people who could go round the examination centres and printing presses on a surprise visit and see that the work of the conduct of examination is carried on efficiently. They may also suggest, if necessary, some ways and means to improve the system of conduct of examinations. Their reports should be placed before the higher authorities and their suggestions for improvement of the system may be considered by the authorities of the university.

Most important factor in the conduct of examination is of course the examinee himself. It is not advisable to ignore him. He sould never feel that he is not given any facilities by the university at the time of examination. His minimum needs like cool drinking water, good sanitary facilities, fans etc. in hot season should be provided. If he needs any facility in the examination hall he should get it. Supervisors should not ignore him. His needs are likely to be few and they should be satisfied. He should not feel that he is neglected. Students should be given maximum comforts during the examination so that they may not have any reason to complain about it and can write the question-papers at ease.

The correspondene between the examiners and university office should be treated as most confidential. Examiners should not divulge the information he gets about his colleague nor he should inform others that he is examiner at such and such examination. This particular work of correspondence with paper-setters and examiners should be restricted to few persons in the university. They should never give out this information to others. It has been a practice in recent years that students do not read during the whole year and after the examination is over, they hunt for the addresses of examiners with a view to approaching them for liberal marking. This has been the trend during the last few years and must be discouraged. Dummy numbers are suggested to discourage this trend. In the university office only persons of highest integrity should be entrusted with this work and the despatch of answer-books also should be done by them. The candidate's real identity should not be known to examiners even indirectly.

In some universities there is a system of tabulators and [illegible] verifiers. The tabulation of marks are done by them. The results are tabulated by them and submitted to the university office. The university office has only to publish the results. But in most of the universities results are tabulated by the office. Most of the staff members from various branches of university office are pulled together for examination work. They are entrusted with the work of tabulating the results. [illegible] and rechecked and then they are entered in the result-sheets. [illegible] prepared and checked by them. The senior persons are asked to [illegible] the final results. In most of the universities results are [illegible] ines. Mark-sheets are also [illegible] affiliated colleges for distribution to the students. [illegible] are collected along with examination fees. [illegible] work has to be done [illegible] by the staff members.

The final stage of [illegible] of examination [illegible] the results. The [illegible] declaring results. [illegible] the same time [illegible] so that the [illegible] certificates and [illegible]. It [illegible] university to [illegible] after the examination [illegible] to the students [illegible] of results.

Arrangements at Examination Centres

S. SANTANAGOPALAN

FOR EFFICIENT CONDUCT of examinations certain preliminary arrangements are necessary. The people connected with the conduct of examinations should be faithful and honest.

The problem of conduct of examinations at different centres is more complicated now a days. With the introduction of supplementary examination and semester examination for the postgraduate courses and professional course, the number of examinations held in a year are many though the candidates are less. The number of question papers has been considerably increased.

The conduct of examinations starts with the despatch of question papers to the different centres. The way in which question papers are packed and sent to different centres is very important . They should be secretly packed and sent in a sealed cover. The postal department has a great responsibility to see that these packets are safely and expeditiously delivered at the centres. The mode of delivery and time at which these should be sent to the centres need special attention.

The person who is entrusted with the responsibility of conducting the examination, should be a man of high calibre. He should be a principal or a senior professor of 15 to 20 years' standing who could be entrusted with such a heavy responsibility of confidential nature. For the conduct of the examinations, the answer papers are normally despatched to the different examination centres without any damage ahead to the commencement of the examination and the question papers should be checked by the person in-charge of the examination and kept in safe custody. It should be the personal responsibility of the person concerned to get them in tact without being noticed or handled by others. It has been reported that the chief superintendent with or without connivance of other teachers open the question paper packets a day before the actual date of examination and thus release

question papers "as probable questions" The motive is purely selfish and is for getting better results for their own colleges. From the moral point of view, this is most degrading. Recently, there was a case in an institution in our area where a principal acted like this and later he indirectly accepted the mistake. During the conduct of the examination, there should be perfect supervision and for that purpose the whole thing depends upon the invigilating staff. Due to the general deterioration in the moral standard of the community, the students are no exception. In certain cases, the students are also induced by the teachers to use unhealthy practices in the examination. Their only objective seems to be to make the students pass the examination somehow by securing higher or good marks.

APPOINTMENT OF INVIGILATING STAFF

[illegible] ld be [illegible] itres. [illegible] that there may be a check and also a moral binding on the people in-charge of the examinations to follow the rules a[illegible] versity. It is, therefore, suggested th[illegible] for invigilating work should be from [illegible] ur experience that [illegible] do not like to go [illegible] ns The university had taken a strong view of this and tried to send an officer of the university to go round the various examination centres to see whether the examinations are conducted according to the rules and procedures laid down by the university. Various cases of lapses were brought to our notice. There was a resentment on the part of the colleges for sending such representatives of the university Anyhow, for the fair and normal conduct of the examinations, it would be necessary to associate members of the staff of the neighbouring colleges and send the officer-in-charge of the examinations to make surprise visits to centres of examinations

SEATING ARRANGEMENTS

The university examinations should preferably be conducted in large halls where almost all the candidates can be accommodated. But in certain colleges a number of rooms in the same block or in separate blocks are used for the conduct of examinations in view of large number of candidates, including private candidates, taking their examination at one centre. In such places, there should be proper supervision and the chief superintendent should make a point to visit each room or building as frequently as possible to see that the rules are followed The candidates should be seated well apart from one another. A minimum of 15 to 20 sq. ft. space should be provided for the examination hall The candidates should also be provided with necessary convenience like, writing tables and separate chairs. It is the practice in some of the colleges to use desks for examination purpose and writing desks are used and two to three students are put in each desk. This would lead to unhealthy practice by the students. Even if candidates writing different examinations are put in each desk, there is no guarantee that malpractices are avoided. It would therefore be necessary that as far as possible

candidates should be provided with separate tables and chairs and proper spacing should be given in between two candidates. As far as possible, lady students should be placed apart from men candidates. Normally, separate centres should be provided for women students. It would also be the condition that in no case a candidate should be allowed to take a seat other than that allotted to him in the examination hall. Seats of absentee candidates should be left vacant.

All candidates should be asked to take their places at least five minutes before the time fixed for giving out the question papers. Otherwise a chaos would occur in the examination. It would be better to have a calm atmosphere when all have taken their seats at the time of distributing question papers. Otherwise correct question papers will not be issued to candidates and this would lead to unnecessary complication.

The question paper covers should not be opened until the candidates have assembled in the examination hall. The covers must be examined and opened by the chief superintendent in the presence of external invigilator who should sign in the space provided for in the question paper covers.

A sketch plan showing the seating arrangements with the register numbers in the examination hall certified by the concerned hall superintendent should be sent to the university. This would enable the university to check up whether proper seating arrangements have been made at the examination.

Candidates should not be allowed to enter the examination hall after the appointed time. No candidate should be allowed to leave the examination room till the expiry of an half hour after the question paper has given out; and candidate who leaves room during the period should not be allowed to return within the period. If on rare occasion when candidates have to leave hall for answering the calls of nature or any emergency, they should be accompanied by an assistant superintendent or a member of the teaching staff of the college.

DESPATCH OF ANSWER PAPERS

As soon as the candidates complete their answers, they should stand up in their places and the concerned invigilators should collect the answer papers from the candidates immediately. Before the close of the examination the chief 'superintendent should allow only one exit for the students and one of the invigilators should see that the candidates do not carry with them either the answer paper or any unused answer books or additional books or papers except the question paper.

The candidates should be strictly informed that the answer papers should be handed over to the invigilators before leaving the examination hall and they should not leave the hall unless the answer papers are collected from them by the invigilators. The candidates should not go out of the hall leaving the answer papers on the tables.

The answer papers should be despatchd by registered parcel addressed to the controller of deputy registrar in-charge of examinations by name. In the case of city colleges, the papers may be sent the same date to the university.

The answer paper issued to the candidates should not contain the college office stamp or the initials or fascimile of the chief superintendent.

The signature of the chief superintendent should not be affixed on

the answer paper covers. The station or the college name need not be entered on the covers.

A typed list in duplicate (one with the answer paper packets and another separately) containing particulars :

(a) Centre
(b) Name of the examination
(c) Subject
(d) Time and date of examination
(e) Number of candidates registered
(f) Number of candidates appeared for the examination
(g) Number of absentees *with the register number* and
(h) Total number of packets for the examination may also be sent.

EMERGENCIES

In the case of emergencies, the chief superintendent can contact the registrar and clarify certain things. If anything out of ordinary happens in the examination hall, it should immediately be reported to the university and their clear instructions obtained. The chief superintendent should not presume things for himself and act contrary to the rules and regulations of the university.

examinations in the schools about the same time. Hiring of private premises for this purpose has its own problems.

A related problem is the publication of the results of all the examinations before the commencement of the next academic session in author choice. Thus the examination schedule for the various examinations has to be concentrated into a span of 40 to 50 days.

The result of all this has been overcrowding of examinations and the resulting overcrowding of examinees at examination centres during a fixed period

The remuneration payable for the various jobs is not commensurate with the job requirements. To provide safeguard against smuggling in and smuggling out of answer books and other means of cheating, various procedures are to be followed. The deterioration in the norms of public behaviour has its own deterrent value

With all this, the number of qualified persons availble for the conduct of examinations has been dwindling fast. Senior teachers shun to invigilate at the examination centres for various reasons.

The students punished for resorting to violence and unfair means go to law courts. The time taken by the judiciary to dispose of such cases is long. The court procedures are sometimes embarrassing, if not humiliating, for the staff connected with examinations. All this has discouraged efficient persons to come forward to help in the conduct of examinations.

The following are some of the suggestions which may be considered to minimise the intensity of the difficulties outlined above :

1. The examination for classes, other than the final year of the various courses, should be held first, so as to make it possible to publish their results before the commencement of the next academic session. The examination for the final years classes, especially for the terminal degrees, may be held afterwards. Because not much harm is done if their results are announced a little later than the commencement of the next academic session.
2. The examinations for the students should be separated from the examinations of regular students of colleges and the same should be held some time during the vacation time. However, the final year examination of external candidates may be held along with others so that those of the external candidates who may wish to seek admission to the next higher course as regular students, in the event of their being successful may not be at a disadvantage.
3. The rates of remuneration payable for the various jobs connected with the conduct of examinations be suitably revised so as to attract senior people to do the examination work. If that is not possible, the whole work should be made honorary, obligatory

Arrangements for Examinations

MADAN MOHAN

THE UNIVERSITIES ALL over India, especially those where the number of examinees to be examined is quite large, have been concerned over the deterioration in the quality of arrangements made for the conduct of examinations. The number of candidates reported to have resorted to the use of unfair means has been on the increase. Cases of mass-copying at examination centres have not been uncommon. In quite a few cases physical violence has been resorted to, by examinees or others. Superintendents, invigilators and sometimes other persons connected with the conduct of examinaions have been assaulted. A single case of assault at an examination centre or outside sets in motion a wave of demoralisation among those connected with the conduct of examinations.

Before India attained independence, university education was the privilege of the elite, whose number was very small. Now it has come to be realised as a right for every citizen. There is no denying the fact that many f the universities have far outgrown the optimum strength of students and achers. There are colleges running in three shifts. Student population drawn both from urban and rural areas, from rich and poor sections of the ciety. Similar is the case with the faculties. This transition period of ciological adjustment between the various types is manifest with probms of psychological behaviour between individuals.

Besides regular students in colleges, there are other categories of candiates—external candidates, teacher candidates etc. who take the examination s private candidates. A majority of such candidates are those who were nsidered to be inferior students in the schools.

With all this overcrowding the number of candidates to be examined r exceeds the space available to examine them. Suggestions to hold exaination in shifts have not found favour with those concerned with academic andards. Phasing of the programmes of various examinations have also

[illegible]

examinations in the schools about the same time. Hiring of private premises for this purpose has its own problems.

A related problem is the publication of the results of all the examinations before the commencement of the next academic session in author choice. Thus the examination schedule for the various examinations has to be concentrated into a span of 40 to 50 days.

The result of all this has been overcrowding of examinations and the resulting overcrowding of examinees at examination centres during a fixed period.

The remuneration payable for the various jobs is not commensurate with the job requirements. To provide safeguard against smuggling in and smuggling out of answer books and other means of cheating, various procedures are to be followed. The deterioration in the norms of public behaviour has its own deterrent value.

With all this, the number of qualified persons availble for the conduct of examinations has been dwindling fast. Senior teachers shun to invigilate at the examination centres for various reasons.

Some years back, to assign to the examinees an examination centre other than their own college was a must. This was considered a safeguard against [illegible]

The students punished for resorting to violence and unfair means go to law courts. The time taken by the judiciary to dispose of such cases is long. The court procedures are sometimes embarrassing, if not humiliating, for the staff connected with examinations. All this has discouraged efficient persons to come forward to help in the conduct of examinations.

The following are some of the suggestions which may be considered to minimise the intensity of the difficulties outlined above :

1. The examination for classes, other than the final year of the various courses, should be held first, so as to make it possible to publish their results before the commencement of the next academic session. The examination for the final years classes, especially for the terminal degrees, may be held afterwards. Because not much harm is done if their results are announced a little later than the commencement of the next academic session.
2. The examinations for the students should be separated from the examinations of regular students of colleges and the same should be held some time during the vacation time. However, the final year examination of external candidates may be held along with others so that those of the external candidates who may wish to seek admission to the next higher course as regular students, in the event of their being successful may not be at a disadvantage.
3. The rates of remuneration payable for the various jobs connected with the conduct of examinations be suitably revised so as to attract senior people to do the examination work. If that is not possible, the whole work should be made honorary, obligatory

and certain minimum invigilation sessions should be compulsorily assigned to all the teachers in the university and colleges.

Another method of drawing senior persons to examination work would be to request the principals of colleges to act as superintendents at the examination centres located in their buildings and to the professors of the university to act as superintendents in the centres located at the university buildings.

4. The assigning of candidates of a college for examination in the buildings of the same college has its own advantages and disadvantages. But in the present context of things, it seems to have more advantages than disadvantages.

5. In order to detract students from the temptation of using unauthorised aids during the examination, reforms should be introduced in the methods of examination, e.g., the suggestions already made to set question papers in such a manner as to allow free use of text books etc. may be seriously considered in this connection.

6. In order to restore confidence in the academic community, the Government should seriously consider whether the law courts should have jurisdiction over the decisions of the university in matters of violence and/or resorting to unfair means by candidates. In this connection, the establishment in each university of a legal cell constituted mainly of academic persons with one or two persons from the judiciary may also be considered. If that is not possible, there should be separate cells in the law courts to deal with university cases.

Examinations and Unfair Means

K.V. IRNIRAYA

INTRODUCTION

THE CASES OF unfair means may take place before, during or after the examinations.

UNFAIR MEANS BEFORE THE EXAMINATION

Precautions to be taken at the time of setting, printing and distribution of question papers—

Various stages in the examination process, viz. setting of question papers, printing and their distribution involve [illegible] effort. The need to maintain utmost secrecy regarding the paper setter, place of printing and the preservation of the question papers [illegible] cannot be overemphasised.

It is desirable to get the question papers printed in the [illegible] section of the press assigning code numbers to avoid any [illegible] practice. Adequate care should be taken while [illegible] question papers to the university office and [illegible] examination centres. The chief superintendents [illegible] keep the question papers in their custody. [illegible] papers are preserved in safe custody, [illegible] by the university authorities at [illegible]. [illegible] hours before the examination may [illegible] of universities having affiliated colleges [illegible].

Precautions to be taken at the time of [illegible]

Impersonation is one of the [illegible]

at the examinations. Candidates intending to impersonate plan their strategy at the time of sending their applications. The starting point is often a request for change of centre. One way of curbing this malpractice is to impose blanket ban on the practice of granting change of centre. However, this may affect some genuine cases as well. If such a drastic measure is not found feasible, the practice of granting change of centre may be restricted to cases recommended by the heads of the institutions on merits. In all cases of change of centre, submission of passport size photographs of the candidates should be insisted upon. The copies should be attested by the head of the institution or a gazetted officer. One copy of the photograph should be affixed on the admission ticket issued to the candidate and the other should be sent to the chief superintendent of the centre where the candidate takes the examination for purposes of reference and verification. In the case of regular candidates, where scope for impersonation is less, the signatures, of all the candidates should be taken in the invigilators diary before the commencement of the examination every day.

Precautions to be taken at the examination centre :

The chief superintendents are responsible for making seating arrangements in the examination halls. The seating arrangement may be changed from time to time to frustrate any plan to get extraneous help. Care should be taken to ensure that the candidates do not change their seats without prior permission of the chief supcrintedent. The invigilators may be allotted to different rooms a few hours before the commencement of the examination to avoid any possible collusion between the invigilators and the candidates. Posting of strangers as invigilators may go a long way in this regard.

UNFAIR MEANS AT THE EXAMINATION

The *modus operandi* employed by the candidates to get extraneous help at the examination offer an interesting study. Following are some of the modes employed by the candidates.

(1) Oral communication with another candidate or a person inside the examination hall.

(2) Communication through signs or gestures.

(3) Passing information through paper bits, blotting paper, question paper, etc.

(4) Smuggling in information in some part of the body or in instrument box, scales, mathemtical tables, etc.

(5) Receiving information through water boys or attenders.

(6) Leaving the examination hall in the midst and smuggling in manusscript or written matter from outside the hall.

(7) Smuggling in answer books with matter written outside the examination hall and inserting the same enblock in the jacket of the main answer book issued at the commencement of the examination.

(8) Revealing the identity by signing or writing the name in the answer book or putting up an appeal to the valuer to award more marks.

(9) Copying with the connivance of the invigilator. The failure on the part of the invigilator may be due to : (*a*) threat of physical harm, (*b*) monetary incentive, (*c*) affinity, (*d*) undue pressure, (*e*) indifference or a desire to get better results in the institution.

CHECKS AND REMEDIES

In order to check large scale smuggling in of manuscript or printed matter into the examination hall, a warning as worded below may be administered to all the candidates before the commencement of each session every day:

> 'You should search your bag, desks and benches and hand over to me (superintendent) any paper, book or note which you may find therein before starting to answer any paper of examination.'

The chief superintendents should be instructed to give this warning to every late comer individually. The warning may also be printed on the admission tickets issued to the candidates which may serve the purpose of giving advance notice of the precaution the candidates have to take before proceeding with the examination One way of preventing smuggling in of manuscripts, printed matters or answer books with the matter written outside the examination hall is to prevent the candidates from leaving the hall in the course of the examination. Strict watch on the supervisory and subordinate staff and total exclusion of strangers from the examination centre may go a long way in curbing this malpractice.

It is desirable that the candidates are warned about the other types of unfair means and the consequences that will follow if they resort to them. A warning on the following lines may be printed on the admission tickets issued to the candidates :

> "Any candidate having in his possession or accessible to him papers, books or notes which might possibly be of assistance to him or found
> note
> rites
> the
> ther
> n his
> answer books for that purpose or using abusive or obscene language or communicating or attempting to communicate with the examiner, shall be debarred for a period which may extend to......years.
>
> Any candidate found guilty of deliberate previous arrangement to cheat in the examination such as smuggling in another answer book, impersonation or some other misconduct of a serious nature, shall be debarred for a period which may extend to......years."

The above warning may serve as a deterrent though it may not eliminate all cases of unfair means by itself. Much depends upon the standard of invigilation and supervision which in turn depends upon the integrity and efficiency of the personnel employed for the task. It is imperative that persons whose relatives are taking the examination and others who have imparted private tuitions should be rendered ineligible for this work. Likewise persons who are susceptible to coercion and local pressures should be spared of this work. The room superintendents and invigilators should be instructed to take rounds in the halls in performance of their duty. To

ensure effective invigilations not more than 40 candidates should be allotted to each invigilator. Assigning independent seats to the candidates is an ideal arrangement. Two candidates may be permitted to write on the same desk with proper supervision. Allowing more candidates on a desk may lead to copying.

The malpractice of smuggling an answer book from outside the examination hall and its insertion in the main answer book calls for skilful planning. One way of checking this is by preventing any question paper going out of the examination hall immediately after its distribution. Such a step prevents an outsider preparing the answers for the candidate. In addition, the following steps may also be taken :

(1) The answer books should bear serial numbers and the invigilator should enter the same in the invigilators diary against the registered number of the candidate taking the signature of the candidate before the commencement of the examination. Whenever an additional book is issued its serial number should be entered in the invigilators diary and the initials of the candidate should be taken. After the conclusion of the examination the chief superintendent should ensure that the candidate has handed over the answer books issued to him.

(2) The answer books should contain a specific number of pages and they should be numbered. The candidates should be instructed, at the commencement of the examination to count the pages and to report any discrepancy in the number of pages. This procedure may help check insertion of pages in the main answer book to some extent.

(3) The candidates should be instructed not to detach any pages from the answer books or to insert any loose sheets.

(4) The answer books should contain pages with the specific water mark to check insertion of different type of paper in the answer book.

(5) Often the candidates resort to the ingenious method of inserting pages of an old answer book inside the jacket of the answer book supplied to them by removing and refixing the pins. In such cases the serial number of the answer book and the water mark remain unaltered rendering the malpractice committed difficult of detection. Following checks may be employed in this connection :

The chief superintendents should be instructed to maintain day to day account of answer books issued. After each examination the unused answer books should be withdrawn and fresh books should be issued with a different identification mark. This procedure may be feasible particularly in the case of residential universities and other universities having small number of affiliated colleges. This malpractice can further be checked by putting centre pins to the answer books instead of side pins. While side pins can be put with a hand machine, it is not possible to put centre pins without damaging the answer books.

Tampering of centre pins leaves marks on the outer cover rendering it easy for detection at the time of despatch or valuation. Sometimes the candidates fasten the loose inner pages to the outer jacket with a tag. Such cases are easily detected.

The practice of putting up appeals to the valuer, candidates revealing the identity or enclosing currency notes, etc., can be curbed by issuing suitable warning to the candidates. The valuers should be instructed to report such cases whenever it comes to their notice.

MASS COPYING AND CONSEQUENTIAL ACTION

Mass copying may be with the connivance or in defiance of the authorities incharge of invigilation work at the centres. Mass copying with the connivance of the authorities is common in centres located in mofusal areas as there is a built-in safeguard in the form of lack of communication The reason for official connivance may be to get better results, to retain recognition, affiliation or grants received from the university or the government. It may also be due to the incompetence on the part of supervisory staff or the pressures or coercion exercised over them. Posting of outsiders as chief superintendents or deputy chief superintendents may go a long way in preventing collusion between the candidates and the supervisory staff. Whenever such cases are detected both candidates and the supervisory staff should be given examplary punishment to serve as a deterrent. Such centres should also be declared disqualified for future examinations.

Mass copying in defiance of the authorities calls for prior planning. The authorities incharge of conducting examination should seek timely help from the District and Police authorities to put down such concerted action by the candidates Flying squards consisting of university authorities may be sent to such centres to help the local authorities conducting the examinations In all these cases there is need to give deterrent punishments to the guilty candidates

UNFAIR MEANS AFTER THE EXAMINATION

Substitution of fresh answer book or insertion of fresh matter written outside the examination hall in the main answer book are the common types of malpractices committed at the despatching stage. The chief

ther, the despatch work should invariably be done in their presence.

The candidate "chasing" their answer books constitute another kind of unfair means committed after the examination. The answer book bundles received from the examination centres should be given to the despatchers without mentioning the name of the centre and without giving any particulars of the register numbers of the answer books contained in the bundles. Before the answer books are despatched from the centres they should be divided into batches of 25 and should be sealed in cloth bags which in turn should be sent in outer cloth bags The despatchers in the university office should be instructed not to open the sealed inner bags but to send them to the valuer as per the scheme of distribution The procedure prevents the despatchers from having any access to the answer books. The scheme of distribution of answer books should be kept confidential. The system of coding the answer books reduces scope of unfair means to a large extent, though it is a time consuming process Another method of curbing such practices is to have centralised valuation with code numbers assigned to

the answer books. Proper selection of personnel for despatch, coding, tabulation coupled with eternal vigilance and supervisors at all levels goes a long way in reducing the cases of unfair means to the minimum.

REPORTING OF UNFAIR MEANS

Procedure and proformae

The unfair means cases are detected : (*i*) at the time of examination, (*ii*) at the time of despatch of answer books by the chief superintendents, (*iii*) during valuation of answer books, and (*iv*) through other means, such as petitions etc.

In order to ensure uniformity in reporting unfair means cases, it is desirable to prescribe a procedure and to instruct the chief superintendents to follow the same. The procedure may be on the following lines:

When the chief superintendent takes action against a candidate committing malpractice he shall invariably demand a written explanation or statement of the candidate concerned in the presence of responsible witnesses.

If the candidate refuses to give his statement, the candidate shall be asked to record in writing his refusal to give a statement. If he refuses to do even that, the fact shall be noted, duly witnessed by two members of the supervisory staff including the deputy chief superintendent (where appointed).

When a superintendent detects a case of malpractice, he shall send for the chief superintendent atonce. In the meantime he shall prevent the candidate from writing further and shall not allow the candidate to remove, displace or destroy the materials from which the candidate was copying. Unless it is inevitable, he shall not take into possession such materials till the chief superintendent comes there.

When a candidate is detected committing a malpractice, the superintendent who has detected the case and the chief superintendent shall take care that their reports are always full and complete in every respect and include all the known facts and relevant circumstances of the case and other evidence. Such reports shall be prepared in the prescribed proforma and sent to the controller of examinations by name by registered post alongwith the answer book and the concerned superintendent's diary. The cover containing the answer book and other documents shall be superscribed 'Stray Answer Book' in block capitals.

Detection of malpractice at the stage of checking and despatching of answer books—procedure to be adopted

Should a suspicion arise at the time of checking and despatching of answer books with regard to any particular answer book, the chief superintendent should send that to the university stating the grounds of suspicion alongwith the statement of the room superintendent who noticed the cases.

Detection of unfair means cases at the time of valuation—procedure to be followed

The valuers of answer books should be suitably instructed in advance to report to the controller of examinations all suspected cases of unfair means.

They should send such answer books separately as stray answer books alongwith their reports containing grounds for suspicion. The cases in which the candidates insert pages with matter written outside the hall, cases of revealing the identity and cases of putting up an appeal to give pass marks come under this category.

Inquiry into unfair means cases by the university—procedure to be adopted

At the university level a syndicate committee designated as unfair means inquiry committee goes into all cases of unfair means reported by the chief superintendents, valuers and others All the cases received are reviewed by the committee and charges are framed in fit cases The charge sheets are sent to the candidates at their permanent address directing them to appear before the committee to defend themselves against the charges They are permitted to look into the connected records and to put forward their defence, if any
to engage counsel
are quasi-judicial
opportuni
nesses dep
on which
the reason

QUANTUM OF PUNISHMENT

The quantum of punishment in unfair means cases depends upon the gravity of the malpractice committed by the candidate In cases such as impersonation, the candidate is punishable both under the rules framed by the university and under the provisions of Indian Penal Code. The usual mode of punishment is to debar the candidate from appearing for the university examinations for varying terms depending upon the nature of the malpractice committed by him. In less serious cases, the erring candidates are warned or admonished by the university There is need to give deterrent punishment in cases involving deliberate planning to commit malpractice at the examination.

For determining the quantum of punishment the following guidelines may be kept in view :

The cases in which the candidate has in possession papers, books or notes, which are of possibl
or receiving assistance or c
other candidate to copy fr
identity in making specific marks in answer books, may be put in the first category Candidates indulging in such malpractices may be debarred from

sonation, misconduct, etc., may be put in the second category and the candidate may be debarred for a period of not exceeding five years.

Unfair Means at Examinations

V. G. PATHAK

MASS COPYING

IN ORDER TO eliminate the use of unfair means in examination, we have first to see the manner in which the corrupt practices are adopted during examinations. The most common practice adopted is copying from books or notes individually in the examination hall. If copying by individual candidates is not checked by proper invigilation, the copying material is passed on from one candidate to the other, and ultimately, it assumes the magnitude of mass copying by almost one and all in the examination hall. Recently a tendency has been observed on the part of examinees to abuse and threaten the invigilators with violence if they try to check such practices. If the invigilators, the officer-in-charge of the examination centres, yield to such threats, the examinees establish their right of copying by force and it becomes an open secret that copying is allowed at a particular centre of examination. The enrolment of such colleges rises suddenly and even those persons, who are not even anxious and sincere to their studies, get themselves enrolled in such colleges, in order to get through the examination by resorting to copying in the examination hall.

It is also seen that even some principals, in order to popularise their colleges, give encouragement to such copying at their centres. There are instances when principals have kept the entrance of examination centres locked or guarded, so that the inmates, who might be busy in mass copying, be informed about the visit of any university authority or of the inspection committee or of the flying squad.

The menace of mass copying has grown so strong at certain places that even the universities fail to take proper and adequate steps to put an end to it. It is better to close the universities or colleges than to allow such type of mass copying with open eyes. The reluctance or indifference to stop

copying by the teachers, invigilators, principals and university authorities, is a great setback and challenge to the educational system the society has adopted for its nourishment and growth. One of the probable reasons for such indifference on the part of universities might be the fear of students unrest in general at the time of examinations which creates hindrance in the conduct of examinations as a whole Sometimes there are pressures from political quarters not to disturb peace at any cost and therefore universities hesitate to take proper steps to put an end to the evil of mass copying.

It is now high time for the Central and State Governments to intervene and to take proper steps to check the corrupt practices by taking the university authorities into full confidence. Proper interest, directives and help by Government can improve the situation greatly After all, the persons who create nuisance in the examination hall are a few and if they are controlled the menace of mass copying can be nipped in the bud. Proper police protection should be assured at all examination centres without any hesitation and, whenever a report of mass copying is made, proper enquiries should be made and the whole examination of that centre should be cancelled forthwith to stop recurrence in future.

UNFAIR MEANS BY VALUERS

Another type of unfair means is sometimes adopted by the influential valuers. They are unfortunately some of the so called educationists, professors or heads of the departments in the universities and colleges, who are not true to their profession and get the valuation work done through their agents and thus reduce the valuation work to one of the methods of making money. They are not so much conscious about correct valuation as they are conscious about getting the examinership from various sources. These persons are in such a high position that they get the teachers of their choice in the university and colleges appointed as examiners They are also guides of about a dozen of research wokers. Being on the bodies of other universities, they are in a position of exchanging the examinership with their own for other universities In return of this favour they get the valuation work allotted to them done by their favourite teachers and research workers. The purpose of the university to appoint good and experienced teachers as valuers, is thus defeated. In certain universities, there are restrictions that a single examiner should not get more than a specified amount of remuneration for a single examination session, but this does not take into account the remuneration received from other universities. Thus, on the one hand, these professors earn thousands of rupees by way of remuneration, and on the other, they do not value the answer scripts sent to them for valuation. Because they distribute the answer books to various persons, their standard of valuation also differs. One cannot believe that these agents might be valuing the answer scripts scrupulously. Thus the valuation becomes a game of chance. It is more harmful to good students whose answers might not have been valued by some agents by paying required attention towards the contents. Adequate measures should therefore be taken to stop this "agency system" and the "academic dishonesty". The professors of universities in general can be made examiners for research papers, thesis, etc. and the examinership of other popular subjects of postgraduate and undergraduate level can be bestowed upon the senior and experienced teachers of the lower ladder like readers, asstt. professors, lecturers, etc.

APPROACH TO VALUERS

Some of the students manage to approach the valuers for getting a favour from them. Through the valuer in general are not influenced by them, in certain cases of influential candidates or rowdy elements the valuation does not remain objective. This practice is, of course on a small scale, but preventive measures are necessary to stop this one.

An important question is how the examinees themselves come to know the names of examiners. List of examiners is sent to examination centres and the parcels of answer books are despatched to out stations and delivered locally directly by the superintendents of the examination centres. The services of clerks and peons of each examination centres are also required for this work. Thus the names of examiners, which are treated to be most confidential, reach many hands and it becomes easy for the industrious students to discover their names. Thus, in general, the names leak out from the examination centres. Some suitable method is, therefore, required to be adopted to check this leakage. This is more necessary for federal type of universities where most of the examination centres are local. If the delivery of parcels is done by the university office centrally by opening a delivery cell, the leakage can be checked to a great extent. In case of outside examiners, the parcels can be booked at "self" address by the examination centre, themselves giving only the name of the place, and the Railway Receipts can be sent through the university office directly to the examiner. It will thus obviate the necessity of sending the names of examiners to examination centres. The minute details of this arrangement can be worked out by further study and experience.

MODERATION OF QUESTION PAPERS

One of the sources of unfair means is the moderation of question papers. Though not on a large scale, sometimes the moderators either give hints to their favourite students or at times, the portions not covered in the question papers are left out in the class room. There is a strong feeling amongst a class of thinkers that the moderation system should be done away with for stopping this leakage. If the question of leakage is set aside for a moment, the advantages of moderaton are many, from the point of view of the selection of proper questions and avoiding misprint of the question papers. One can only say that the choice of moderations must be careful and the external ones must be preferred to avoid leakage of questions.

TABULATION OF RESULTS AND PRESSURE FROM STUDENTS

Some of the students manage to know the names of tabulators and know their results beforehand. Tabulators who are mostly college or university teachers are not influenced, but a few of them, disclose the marks for popularizing themselves amongst the students. If they are failing by a margin, they resort to all sorts of malpractices like making representations for awarding compensatory marks or grace marks for some reason or the other. Such representations suddenly gather force and pressures are brought on university authorities to increase marks in particular question papers. Sometimes the authorities or officers responsible for solving student problems or responsible for students welfare or members of university bodies

take much interest in individual students. In order to make themselves popular among students, they even support their illegitimate demands, and bring all sort of pressures on the university authorities to yield to their demands and thus lot of confusion is created about the examinations and results of examinations. This confusion is further enlarged as a result of the mal-administration of the university. Care must, therefore, be taken [illegible] cost and unreason- [illegible] h strong hand. The [illegible] ions above all sorts of feuds, groupisms and politics in university administration.

CONCLUSION

It is painful to note that at times the university examination results are not so much trusted by some institutions and they hold separate entrance examinations for admission to their respective course of studies, like the Pre-Medcal Test Examination. There might be other reasons for this, but one of the reasons is the doubtful nature of the examination and examination results. Some persons speak of the outdatedness of the examination system and its need for improvement Some feel that books may [illegible]

any hindrance Therefore the use of unfair means can best be checked only by a determination on the part of all concerned to stop it, by proper invigilation in examination hall by proper police protection, if need be, and by proper administrative reforms to cement all sources of leakages. Testing of a product is as important as its production and a seal of standardization on it should speak of its quality. The degrees and diplomas awarded by universities should be the true indicators of the abilities and proficiencies of persons holding them.

Measures for Checking the Use of Unfair Means

JAGJIT SINGH

TO THE PEOPLE who have to conduct the examinations I would say that the belts must be tightened and the potentialities of the following measures may be explored:

1. Good examination halls with all amenities and reasonably comfortable furniture is indispensable and will go a long way in improving the situation.
2. Mature persons with keen sense of responsibility should be appointed for conduct and invigilation duties.
3. A detailed inventory of unfair means should be prepared and respective punishments accruing as a result thereof be spelled out. Every candidate should be asked to sign such a list at the time of submitting the admission form. Such an undertaking should be got signed by the candidate and his guardian that they may be unable to take recourse to law. This undertaking should be formulated by legal experts and should be incorporated in the university Act. The legal provision in university Act will countervail all other laws to which the defaulters take recourse to.
4. Whenever cases of unfair means are reported on a well conceived and comprehensive proforma, action should be taken immediately.
5. Remuneration for invigilation duties should be adequate so as to attract people of a better calibre.
6. Of late the National Council of Educational Research and Training has been holding Paper-Setters Workshop to train paper-setters. It may be considered if some sort of training be given to those who are involved in the conduct of examinations.
7. The principals should be entrusted with overall responsibility for

smooth conduct of examinations in their colleges and maintenance of discipline outside the examination hall/halls. They may further be authorised to enter the examination centre if and when the situation so demands

8. No centre should have a strength of more than 250 candidates as far as possible. Before a place is chosen for an examination centre its capacity should be carefully examined and the seating arrangement made in such a manner that candidates are not seated in close proximity. This will ensure better invigilation and less scope for candidates to employ unfair means

9. The strength of the supervisory staff be determined at the rate of one invigilator for every 30-40 candidates. In centres where rooms are used a minimum of one supervisor irrespective of the number must be there even if the number of students seated as per capacity of room is less than 40 If the number exceeds 40 in a room another invigilator be appointed.

10. One special assistant superintendent be appointed for supervisory duty outside the examination hall who may be required to keep strict vigilance on the urinals when students go to urinate.

11. To minimise the use of unfair means the students must be educated in the college not to resort to the use of unfair means and they be apprised of the consequences and its effect on their future life. It will be advisable *in my opinion to apply these rules in the House* [illegible] means at the [illegible] to the univer- [illegible] ome deterrent effect.

12. No books or papers be allowed to be placed inside the examination hall or room. To discourage the use of unfair means it may be considered worthwhile if the students are asked to dispossess themselves of any type of books or papers before they are allowed to enter the examination hall.

13. Due protection should be provided to the supervisory staff in consultation with the District Magistrate of the illaqa

14. All the examination centres should be listed into three categories *viz.*, good satisfactory and indifferent and these lists should be circulated so as to make the indifferent ones feel and realise their responsibility.

15. Experience shows that the presence of police serves as a red rag to a bull. The student community somehow is allergic to it. Instead of police it will be better if some influential persons of the community are taken into confidence. It may yield good results. After all, unfair means is a society question If this exercise starts in the formative period of the life of the youth, there is no reason to believe that they will not be using these third degree methods in their profession and life, when they leave the portals of educational institutions.

16. In order to keep off outside interference at the examination centres, the district authorities should be approached to promulgate Section 144 within the radius of 100 yards of a notorious centre.

This of course should be the last resort where other remedial measures fail.

INSPECTION OF CENTRES

1. The inspections must be conducted on the days of compulsory papers. The inspectors should remain at the centres throughout the examination of these days. If a candidate is unable to use unfair means on the days of compulsory papers he might not make any attempt in other subjects as it may not be helpful. 2. The inspections should be made frequent specicially in case of notorious centres. 3. For notorious centres besides the usual inspection, flying squads may also be appointed.

In the end I would like to agree with the extremists view that either end the system and abolish all examinations or mend them with the tenacity of purpose to relieve us of this widely spreading pestilence of unfair means.

Collective Use of Unfair Means

GIRIRAJ KISHORE

THE COLLECTIVE USE OF UNFAIR MEANS

T[illegible] ample
[illegible] Kan-
[illegible] 1970
the university experienced that the use of unfair means at the individual level has increased in number (Encl. 1 .). In 1970 this tendency has turned into collective use of unfair means. In reference of the collective use of unfair means, the examination of 1970 conducted by the Kanpur University can be considered as an important examination in its history. The vice-chancellor of the university made real efforts to curb this practice of the use of unfair means at the university examinations and appointed senior and impartial teachers of the colleges under the university in a large numbe[illegible] The determination of the vice-ch[illegible] brought four centres *i.e.*, 1. Bad[illegible] 2. D. N. Degree College, Fatehgarh; 3. D. S. N. Degree College, Unnao; and 4. Feroz Gandhi College, Rai-Bareli to book under the charge of mass copying.

The Act and Ordinances of the university were completely silent on the point of collective use of unfair means. The present Ordinance [illegible] Moreover, [illegible] e against [illegible] of any light shown by the Ordinances or precedent the Executive Council took certain decision against the above mentioned four centres :

1. All the four examination centres were abolished for a period of three years.

2. All the teachers of the four colleges were debarred from remuneration work of the university for a period of three years.
3. No further affiliation for new subjects be granted to these four colleges for three years.
4. All examinations conducted at the above four centres be cancelled and fresh examinations be held by the university.

Consequently the re-examinations were to be held from 18th July, 1970, the students were informed through registered letters. Since the Act was silent and no Ordinance was available on this point, the students, guardians, political communities represented to the Chancellor. The Chancellor intervened at a very late stage and advised the Executive Council not to hold re-examinations.

SUGGESTIONS TO CHECK MASS COPYING

Till there is improvement in the present system of examination, the measures to check the tendency of mass copying at the following three levels are suggested :

A. Constitutional Level.
B. Operational Level.
C. At the Level of Examination.

A. (*i*) The limitations of the universities at the constitutional level had already been discussed. The universities generally meet such situations by framing the Ordinances under the provision of Act and Statute. The framing of the Ordinances and its operation have their own limitations. The problems involved in mass copying are becoming grave and the conduct of examinations under present system is becoming difficult. Hence the collective use of unfair means at the examination centres should clearly be defined in the Act itself.

(*ii*) The powers of the vice-chancellor, defined under the university Act should be amended and this be added that if the vice-chancellor is satisfied through the report of the centre inspector or through the inspection made by himself that the use of unfair means at a particular centre is more than 25%, he may cancel the examinations held at that centre immediately and report to the Executive Council. In case the vice-chancellor desires to inflict severe punishment, he may place his recommendations before the Executive Council.

(*iii*) There must be some provision about the special powers of the vice-chancellor during the examinations of the university under the Act. The vice-chancellor may call the district administration at any time in the wake of emergency connected with the university examinations. The district administration should immediately respond to his call.

(*iv*) If the vice-chancellor finds the sanctity of the examination is being vitiated, he may recommend for the requisition of buildings connected with the Government private or social organisation to the district authorties for the conduct of the examinations. The district administration should fully co-operate with the vice-chancellor.

B. (*i*) For the smooth conduct of the examinations, special grants should be given to the universities to construct the examination hall. In case of affiliating universities, the examination halls will be needed at every

district headquarters under its jurisdiction. Special grant will also be required for the equipment of the examination halls

(*ii*) There should be provision of a permanent inspectorate in the university. In the absence of the permanent inspectorate the problem of inspection in an affiliating university becomes very acute. The teachers of one college are sent to other colleges for inspection and there is always a possibility of their being influenced at personal level. Hence, the provision of appointing a permanent inspectorate should immediately be considered at the Government level.

(*iii*) Police flying squads should be provided to the board of inspectors during the inspection of the examination centres and they should also be given powers of first class magistrate by the State Government. The board or the members of the board will exercise these powers in maintaining the security of the university examinations

(*iv*) In case the board of the inspectors or its members find an individual copying or the collective use of unfair means at a centre, they can remove the invigilator or invigilators immediately from the invigilation duty and report to the university for debarring him or them for a certain period from remunerative work of the university. The university will also have the right to punish these invigilators through the managing committee

C. Till the of system internal assessment is introduced, it is necessary, to consider the measures to remove the possibilities of using unfair means before and after the examinations from the present system of external assessment.

(*i*) Syllabii should be detailed with the names of the books and the journals against the topic prescribed in the syllabus. The marking scheme should be such that the possibility of excluding any topic at the time of preparation by an examinee can be minimised The questions in a question paper should be set topic-wise.

if possible, the students may be allowed to bring with them the text books only in the examination hall for consultation.

(*iii*) Like the ancient system of Indian education the major part of the examination should be made oral and the board of the examiners for conduct ing the oral examinations should consist of four teachers from different universities.

(*iv*) Parliament may be approached to frame an Act to ban writing, printing and using of cheap notes and guess papers. During the special screening of answer books of four centres of Kanpur University, it was found that nearly 70% students used cheap notes and guess papers in the examination hall.

(*v*) The centre superintendent must have the right to undertake physical search of students if he suspects the sanctity of the examination is being violated during the university examinations

(*vi*) There should be a provision of campus police in the universities which will help the examination superintendent and the invigilators in conducting the examinations smoothly. It will also be easy for the centre

superintendent to conduct the physical search of student with the help of campus police. The campus police will also help in restraining the students from taking the law in their hands.

(*vii*) This has also been experienced that the students are in the habit of using unfair means after appearing in the examination, by approaching the examiners. They also try to know their result before hand by approaching the tabulators. The following suggestions are being proposed to check this tendency of using unfair means at post examination stage:

(a) *Coding* : The system of allotting the code numbers in all examinations should be introduced in the universities. The universities should be given special grants for establishing coding cells. The personnel for this work should be technically trained. The University Grants Commission should arrange to establish an Institute for imparting such training to the university personnel, as may be beneficial for the smooth and efficient working of the coding cells.

(b) *Evaluation* : The answer books of the examinees should be centrally evaluated under the supervision of the university. The practice of sending the answer books to the examiners needs to be stopped. This will help in putting off the tendency of approaching the teachers at the post examination stage.

(c) *Marking of Answer Books* : To stop erratic marking, at least at post-graduate level, by an outside examiner, the answer books should be evaluated by a set of two or three examiners and the result should be declared on the basis of the minimum average marks obtained by the examinee.

(d) *Mechanisation* : The whole processing after the evaluation of the answer books should be mechanised. This will help in checking the tendency of improving or changing the results at the tabulation stage.

It is hoped these observations will be taken in the spirit in which they are given. We are faced with a serious problem and unless drastic measures are taken and pretty quickly to stern the rot that has set in, the whole structure of our educational system may collapse.

Cases of Unfair means

Enclosure—1

Sl. No.	Examinations	1968		1969		1970		
		No. of candidates registered	Cases of unfair means	No of candidates registered	Cases of unfair means	No. of candidates registered	Cases of unfair means	Remarks
1.	B A. Part I	10185	116	14730	144	17552	180	
2.	B A. Part II	4791	29	8015	75	10985	70	
3.	B Sc. Part I . .	4343	46	5305	79	6298	77	
4.	B.Sc. Part II . ..	1623	22	2341	27	2533	23	
5.	B Sc. (Ag.) Part I & II	1450	6	1382	4	1097	6	
6	B.Com. Part I & II ..	1419	21	1779	32	1870	35	
7.	B Ed.	760	1	961	—	1076	—	
8	M.Ed	33	—	44	—	53	—	
9.	M.Sc (Prev & Final)	934	4	1420	1	1805	—	
10	M.Sc. (Ag.) (Prev & Final)	320	—	349	—	374	—	
11.	M Com. (Prev & Final)	424	—	454	3	478	—	
12.	LL B. (Prev & Final)	1207	9	712	4	462	2	
13.	LL.B. (Ist & 2nd Year) (New Scheme)	—	—	663	8	1280	12	
14.	M.A. (Previous) ..	4432	4	5461	5	7430	—	
15.	M.A (Final)	1849	—	2527	—	3180	—	
16	Engg., (Tech) & G H. M S.	820	2	818	1	761	3	
17.	Medical Faculty ..	—	—	510	—	658	—	
	TOTAL . ..	32547	260	47471	383	58328	408	

Prevention of Unfair Means at the Examinations

V. M. SUD

IN ORDER TO curb the evil, not only punitive but also preventive measures would be necessary. The most important of these steps could be to attract teachers of integrity for the supervisory jobs. Teachers of integrity, who at present try to avoid being involved in supervisory work in spite of tempting remuneration, would be forthcoming in adequate numbers as soon as they can be assured of their personal safety. Police protection would not prove to be enough. A concrete step to provide the necessary security is to cover them by insurance against risks. There exists a plan of general assurance under which by paying a premium of about Rs. 5/- per year a person is insured for Rs. 1000/- against death. Under the same insurance he is entitled to some benefits for loss of limb. He is also provided hospitalization charges and medical expenses in case he sustains temporary injuries. To make it a real insurance cover, every member of the supervisory staff should be insured for Rs. 10,000/- and the premium therefor, which would come to about Rs. 50/- per head per year, must be paid by the university. It is not going to prove to be a great financial burden on a university. Assuming that an examination continues for about 40 days for annual examination and another 20 days for the supplementary examination, *i.e.*, 60 days in all, a person will get a remuneration of Rs. 480/- calculated @ Rs. 8/- per session, which is the rate prevalent at our university. It would amount to only 10% of the remuneration which would be more attractive than to give a arise of 20% in the remuneration and make it Rs. 10/- per session.

Besides the insurance cover, the university or the college, as the teacher is employed in the former or the latter, could also extend the benefits of the bonus schemes, in the event of death of an employee on examination duty. Most of the universities and the colleges have a bonus scheme, for payment on retirement or death, whichever is earlier, but this benefit is available only to those employees who have put in a specific number of years of service. This condition may be waived in case of death

while on examination duty and the minimum amount of bonus payable be fixed.

authority, be permitted to go out during the examination hours, to rule out the possibility of external communication in any form. To enforce this, there should be surprise visits not only by superior police officers but by university officers also.

To ensure effective supervision inside the centre, there should be an adequate number of supervisors. In case of big halls, the ratio should not exceed 1:30. In case of smaller rooms, there should be at least two supervisors per room whatever the number of examinees in that room.

the centre superinten- of directions to the can- er done except on the first day. It is therefore deirable to draw up a smaller list and to ensure that it is read out each day by the supervisor concerned before the question paper is distributed. It would include the following.

(1) No candidate should have in his possession or accessible to him, any papers or notes written on his desk, instruments, body, clothing etc. (This will rule out the plea of inadvertence subsequently).

(2) All candidates must write their roll numbers on the question paper and the blotting paper, but no question or answer thereto should be written on these. (After this is done, these papers cannot be exchanged by the candidates).

(3) All candidates must write their roll numbers on the answer books and each of the continuation sheets issued to them, before they start writing on them. (This will also make it difficult for these to be exchanged between the candidates or to be smuggled out for use on a later date.)

(4) No candidate should bring in any eatable in the hall. In case any one has to chew or swallow medicine, he must seek prior permission of the supervisor incharge. (In some cases, candidates take the plea of swallowing medicines, while actually they swallow incriminating material).

It should be one of the specific duties of the supervisors to see, soon after the distribution of the question paper, that the candidate has written the correct roll number on the answer book. He will also ensure this while issuing any further continuation sheets. If any omission or mistake is found during a surprise check in the centre or when these have been sent to the registrar's office, a penalty @ Re 1/- should be deducted from the remuneration of the supervisor.

The answer books and the continuation sheets should be stamped during the examination hours, when these are being written upon by the candi-

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III. *Cheating during the examination*

These are usually with a view to making use of some written material which had been smuggled into the hall by the candidate himself or copying from another person's answer book or permitting somebody else to copy. [illegible] or talking [illegible] le going to [illegible] ting paper [illegible] and subsequently, getting answers thereto, or writing of answers to questions on the question papers or blotting papers or any other paper in the hall with a view to passing them on to some other candidate.

IV. *Indiscipline*

Disobeying the centre superintendent, misbehaving towards the supervisory staff in the hall or after the examination is over, swallowing or destroying the incriminating material when detected: this category of offences would need to be taken note of most seriously.

The quantum of punishment for the various offences would vary from offence to offence. The general spirit behind punishment should be not to mar the career of the student for just a folly committed by him. In fact in every such case, it is not so much the candidate alone who suffers, but the parents also do. But still the punishment should be so as to become a deterrent for the candidate or for others to commit such an offence. Taken lightly, there is every danger of their providing encouragement to others – even the innocent ones. There may be difference of opinion as regards the quantum of punishment for the various offences

[illegible] centre superinten- [illegible] mmittees, appoint- [illegible] case the Academic [illegible] nbers and they are [illegible] the candidate and [illegible]

placed before the committee when they consider the case. The candidates have also the option to appear before the committee. The committee after hearing the candidate and referring to the relevant records is expected to record their decisions in the form of what the High Courts require to be a 'Speaking Order'. By this it is meant that the committee is expected to consider each and every plea taken by the candidate and give reasons why they have decided not to accept it. What is important is to show that they have really done justice.

I have in the foregoing pages tried to deal with some of the aspects of the cases of use of unfair means at the university examinations. These are not expected to bring about an ideal situation, where there would be no such cases. This perhaps might be possible only if we change the entire system of our examination, but that will be waiting for that 'ideal day', which may take too long to come.

Flying Squads for Universities

V. N. KHANNA

imparting education a must. This is per- depth of knowledge lso realized that the external examinations will remain with us for a long time specially in universities which have large number of affiliated colleges of unequal standard.

In order to ensure that the said instrument, that is the system of examinations, gives correct results about the depth of knowledge of the examinees, it is necessary that there should be proper arrangements for invigilation by responsible persons; the students who are required to take examinations do so under the same conditions and what the students write in the examination hall is their own. Under this system if a student is provided some 'guidance' or 'aid' in the examination hall in any form we will not get a true picture of educational attainments. With such 'aids' which we call 'use of

able and real information due to manoeuvring by the examinee himself. A student who passes examination by using unfair means has no knowledge of his own and at the same time he also spoils his character. But in the present set up he has better market value for the purposes of employment. The product labelled as 'A class' on the basis of the reading testing instrument is not only adulterated but away from

the invigilators we may classify them in the following 4 categories:—

CATEGORY 'A'

This includes the invigilators who perform their duties sincerely and who would not allow any examinee to use unfair means. They keep a careful watch and are vigilant like a Jawan on a border post. They will not hesitate to take action against so called students' leaders and the students having connections with V.I.P.s. But unfortunately in the present environment of the country they are a sufferer. They are threatened, assaulted and even killed.

CATEGORY 'B'

This includes the invigilators who perform their duties to the extent that they will not take any action if defaulting examinee has affiliation with some V.I.P. or is a ring leader. They will, however, have no reluctance in reporting the cases of the examinees who in their own opinion cannot put any harm to them.

CATEGORY 'C'

This includes the invigilators who have decided to follow the policy 'see no evil' and they turn their back whenever they find an examinee using unfair means. They would advise the examinees to keep silence and would themselves stand either at the gate of examination hall or will read newspaper or some magazine.

CATEGORY 'D'

This includes the invigilators who have not proved to be good teachers and who are unable to impress the students with their knowledge in the class room. In certain cases some of the teachers belonging to this class may have themselves resorted to use of unfair means when they were examinees. In order to gain cheap popularity the teachers belonging to this class freely move with the students and sometime give them a hint that they will help them at the time of examinations. These teachers when deputed as invigilators create a lot of problems. Since most of the invigilators belonging to this class have connections with V.I.P.s and students' leaders, the authorities cannot dare to take any action against them.

There has been a mushroom growth of colleges in the country during the post-independence era. New colleges are opened despite the fact that they are unable to fulfil the conditions and the things are much below the standard. Our leaders in their scramble for self power and position need a large number of assistants and followers, which also include undesirable elements. In fact our leaders and their assistants are responsible to a great extent for the pollution of the atmosphere in our colleges. They put influence for opening of a college as they want to make use of it for their strategy. They exert influence at every point. The selections of teachers are made on their recommendations. Undesirable students are admitted at their instance. And now they also put undue influence at the time of examinations. Due to this influence of politicians and their associates a large number of teachers are willingly or unwillingly migrating from category of invigilators classified by me under 'A' to the category classified as 'C'.

Under the conditions prevailing in our colleges the schemes like periodic assessment and semester examinations will not be able to make any improvement. The teacher who has to assess the students, the teacher who has to invigilate has to face hindrances in performance of his duties.

To deal with the problems of use of unfair means, the Agra University introduced the scheme of inspection of examination centres by flying squads. This was the first experiment of this type in the country. Of course, this is a short term measure but this has given encouraging results

The aim is to control mass-copying and eliminate use of unfair means during the examinations of the university The colleges affiliated to he Agra University were divided into two zones. One Agra-Aligarh-Mathura Zone and the other Bareilly-Moradabad Zone. In all nine squads were constituted by the university for the purpose Each squad had 5-6 teachers with one of the senior teachers as its leader They were provided with taxies and were advised to secure the help of local police authorities before making the 'raids' at the examination centres Under the protection of local police searches were made of the examinees and the cases of the candidates detected using unfair means were reported to the university The assistance and cooperation received from the police authorities was very encouraging and worth admiration

The flying squads of the university rendered useful service in the direction of the smooth conduct of the university examinations With the implementation of the scheme, there has definitely been a check in the use of unfair means. On the other hand it has raised the morale of the invigilating staff. More than 1000 candidates were detected using unfair means at the examinations of 1970

The total expenditure on this scheme was near about Rs.12,000/- and the State Government is being requested to contribute for the purpose.

I personally feel that following factors are responsible for the successful implementation of the scheme:

1. At the time of the 'raid' there should be adequate police force for the security of the members of the squad. It must be ensured that with the help of police, proper control will be maintained over the undesirable elements.
2. The members of the squad constituted must be bold and should have some experience of dealing with problems of the students. They should be able to take quick decision in case of emergency.
3. In case there is no adequate police protection and the members of the squad feel that they have to face some untoward incident they should not make any 'raid' and should just have a ceremonial inspection and plan a 'raid' for some other date.
4. The programme of the 'raids' should be strictly confidential and the raid should be sudden without any formal or informal notice to the authorities of the centre.

In order to root out the evil, I feel that there should be a central scheme [illegible] UGC [illegible]

of the fact that they had performed their duties sincerely as invigi[illegible]

Custody of Examination Materials

C. C. DAVID

EXAMITATION MATERIALS INCLUDE:

(*a*) Hall tickets for candidates, both regular and private, for purpose of identification,

(*b*) Instructions to candidates to prepare them for the writing of examinations,

(*c*) Question papers,

(*d*) Answer books, and

(*e*) Instructions to chief superintendents.

(*a*) Hall tickets of regular candidates sent from the university are issued by the principals of colleges who are usually the chief superintendents as they can identify them. Hall tickets of private candidates also are issued by chief superintendents. The normal practice for the hall tickets of private candidates is to include photograph of the candidate; and identification of signature by a responsible officer. It will be helpful if the hall tickets of regular candidates also include photograph, in view of the fact that in a college with a large number of students, neither the principal nor the members of staff, who are usually the invigilators, can identify all students. This will also be of help in identification of candidates by external invigilators, who are appointed from different colleges.

(*b*) Instructions to candidates have to be as clear as possible so that no student commits an offence through ignorance. These instructions, printed clearly, must be supplied to the candidates along with their hall tickets.

(*c*) The examination materials can be tampered with by interested persons if the arrangements for their safe custody are not adequate enough or the chief superintendent does not take his duties seriously. This can be prevented to a considerable extent by coding the packets of question

papers, thereby making it impossible to identify particular packets. There must be a strong room with an iron safe at every examination centre for keeping the question paper packets received from the university, just one or two days before the actual commencement of the examinations. The safe custody of the question papers is the most important responsibility of the chief superintendent of the examination centre. The safe must be sealed after use every day. One set of keys of the safe must always be with the chief superintendent. The other set of keys must always be kept in a sealed cover, ready for inspection by the controller of examinations or his deputy at any time during the course of examinations The controller of examinations shall conduct surprise inspections of centres whenever possible during the course of examinations. The surplus question papers must be returned to the university immediately after examinations every day in a specially sealed cover. A careful check of the number of unused question papers returned to the university will help to find out whether there has been any removal.

(*d*) Answer books can carry identification marks which differ from examination to examination. Also a series of identification marks can be used for the whole examination and the answer books with a particular identification mark can be chosen at random at the time of examination. This arrangement makes it impossible far the candidate to know before hand the answer books which will be used for a particular examination. The taking out of blank answer books surreptitiously and the introduction of prepared answer books, either at the examination hall or after, can thus be prevented.

The unused answer books if sent back to the university involves additional expenditure and poses problems of storage for the university. The answer books, if they are to be used for subsequent examination, will have to be redespatched to the centres. Other alternatives are to store them at the centre or destroy them. Storing them at the centre makes them easily accessible, for removal by interested persons for purpose of malpractice at later examinations This becomes easier during the period between examinations when attention is not so close as during the course of examination. Answer books, if supplied [illegible]
requirements, will not be [illegible]
have the small number o [illegible]
ferent identification marks are used for each examination, a careful check will have to be maintained on the destroying of answer books as well.

(*e*) Instru[illegible]
the conduct of [illegible]
chief superinte [illegible]
situations which can be anticipated, should be included. The instructions should serve the purpose of a guide-book.

\ppointment of Examiners

. H. GOLAY

:PARATION OF PANELS OF EXAMINERS

E PRESENT PRACTICE is that the university invites applications for ap-
ntment as examiners roughly at the beginning of each academic year.
e board of studies concerned is supposed to scrutinize the applications
l place on the panel the names of those persons who satisfy the minimum
uirements regarding academic qualifications and teaching experience.
e number of members of many boards of studies is so large (sometimes
many as 50) that calm consideration of the merits of the applications
omes very difficult. The administrative problem is further complicated
some members suggesting non-applicants without giving full details
arding their names, qualifications, teaching experience and address.

A certain committee, appointed by the Inter-University Board of India
w years ago, had suggested that the membership of boards of studies
uld be restricted to 12 to 15 persons at the most. It is very necessary
mend the university Act and rules suitably, so that the membership
o board of studies exceeds 15. Similarly no names of non-applicants
uld be entertained at the meeting of the board of studies while preparing
panels unless full details are available.

)INTMENT OF EXAMINERS

The normal procedure for appointment of examiners is that the
els prepared by the boards of studies are scrutinized by committees
ointed under the appropriate provisions of the university Act for ap-
)intment of examiners. The recommendations of the committee are then
ed before the Academic Council which then makes suitable recommen-
ons to the Executive Council for the final appointment of examiners.

Under the provisions of Act, the discretion of the Executive Council in changing the recommendations of the Academic Council in regard to the appointment of examiners is very restricted. Virtually, therefore, the recommendations made by the Academic Council are accepted.

UNFAIR MEANS

The most common form of unfair means employed by candidates at public examination is copying. Senior supervisors have standing instruc- [illegible]

who detected the case of copying, is recorded by the senior supervisor, who makes a confidential report to the registrar along with the necessary documents, such as the answer book, scraps of paper found, etc. Other less frequent unfair means are: (1) impersonation at any examination and (2) bribing menials in the university office for the purposes of substituting answer papers, which have already been assessed, in the university godowns.

The Executive Council appoints each year a committee of its own to investigate cases of unfair means employed during the examination season [illegible]

examined and the committee then arrives at a conclusion In some cases, the committee feels that sufficient evidence does not exist to sustain the [illegible]

year or two years. Normally no student is debarred from appearing at a university examination for more than two years.

There are some cases of malpractices being resorted to by paper-setters and examiners. Poona University had a case a few years ago, where a certain examiner demanding illegal gratification from students appearing at practical examinations was trapped with the help of the police and prosecuted in a Court of Law. He was, however, acquitted on the ground that the anti-corruption law applies only to public servants and the examiner concerned could not be described as a public servant within the meaning of the Act and he was, therefore, acquitted. Serious attention needs to be paid to remedying such a situation.

Examination Schedules

B. F. SHAH

EXAMINATION PROGRAMMES

IN ARRANGING THE examination programmes the following points are considered :

(1) The number of examinations
(2) The number of students appearing at a particular examination
(3) The number of centres
(4) Accommodation available at centres
(5) Capacity of the presses in printing the question papers
(6) The last working day in a particular faculty

In our university the written examinations start from the second week of March and last upto the end of the month of May. The majority of examinations are held between the period 15th March and 30th April. Examinations are not started before the close of the second term except in some extra-ordinary cases.

In this part of the country *i.e.* Gujarat and Maharashtra, students are allowed to keep terms simultaneously for two courses—one undergraduate and the other postgraduate. I do not know what is the practice in other universities. The practice started, I suppose, when the examinations for the Masters' degrees were held at the end of the second year. Now that examinations even at the Masters' degrees are held at the end of the first year it is for consideration whether the concession granted in good old days should be continued. In our university we have introduced semester system at the M.A., M.Sc. and Law examinations. Examinations are held at the end of every term. In the examinations held in the first half of the year it is possible to accommodate students appearing at two examinations simultaneously but in the second half of the year it is very taxing. It is

my personal view that at least where examinations are held twice a year, [illegible] two courses. [illegible] for diploma [illegible]

In arranging programmes of the examinations to be held in the second half of the year, the examinations have to be started before the close of the term. Alternatively the vacation after the second term has to be increased.

GAPS BETWEEN EXAMINATION SESSIONS

Generally examinations in Medicine, Engineering and Law are held twice during a year. As regards other examinations, the practice varies from university to university. In universities in North India and Madhya Pradesh supplementary examinations are held in July, August or September for the benefit of students who have failed in one subject only. I understand that there is no provision of gracing in those universities.

[illegible] terms for next [illegible] the university [illegible] at they should [illegible] in the lower examinations [illegible] If this request of students [illegible] aminations twice a year. It is needless to point out that this would involve heavy strain on administration.

DECLARATION OF RESULTS

The expert committee appointed by University Grants Commission to report on examination reforms has recommended that the administrative work connected with the examinations should be reformed with a view to avoiding delays in publication of results.

The stages between the conclusion of an examination and declaration of its results are as under :

Where code numbers are given

1. Receiving the answer books in the university office
2. Verification of answer books with a view to examining whether any identification marks are made in the answer books
3. Giving code numbers
4. Sending the answer books to examiners
5. Valuation of answer books by examiners
6. Receiving the marks sheets from the examiners
7. Decoding and tabulation
8. Declaration of the results
9. Preparing the marks sheets and sending them to colleges.

Where code numbers are not given

1. Sending the answer books to examiners

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(6) The last working day in a particular faculty

In our university the written examinations start from the second week of March and last upto the end of the month of May. The majority of examinations are held between the period 15th March and 30th April. Examinations are not started before the close of the second term except in some extra-ordinary cases.

In this part of the country *i.e.* Gujarat and Maharashtra, students are allowed to keep terms simultaneously for two courses—one undergraduate and the other postgraduate. I do not know what is the practice in other universities. The practice started, I suppose, when the examinations for the Masters' degrees were held at the end of the second year. Now that examinations even at the Masters' degrees are held at the end of the first year it is for consideration whether the concession granted in good old days should be continued. In our university we have introduced semester system at the M.A., M.Sc. and Law examinations. Examinations are held at the end of every term. In the examinations held in the first half of the year it is possible to accommodate students appearing at two examinations simultaneously but in the second half of the year it is very taxing. It is

my personal view that at least where examinations are held twice a year,

In arranging programmes of the examinations to be held in the second half of the year, the examinations have to be started before the close of the term. Alternatively the vacation after the second term has to be increased.

GAPS BETWEEN EXAMINATION SESSIONS

Generally examinations in Medicine, Engineering and Law are held twice during a year. As regards other examinations, the practice varies from university to university. In universities in North India and Madhya Pradesh supplementary examinations are held in July, August or September for the benefit of students who have failed in one subject only. I understand that there is no provision of gracing in those universities.

eep terms for next by the university , that they should wer examinations quest of students twice a year. It train on administration.

DECLARATION OF RESULTS

The expert committee appointed by University Grants Commission to report on examination reforms has recommended that the administrative work connected with the examinations should be reformed with a view to avoiding delays in publication of results.

The stages between the conclusion of an examination and declaration of its results are as under :

Where code numbers are given

1. Receiving the answer books in the university office
2. Verification of answer books with a view to examining whether any identification marks are made in the answer books
3. Giving code numbers
4. Sending the answer books to examiners
5. Valuation of answer books by examiners
6. Receiving the marks sheets from the examiners
7. Decoding and tabulation
8. Declaration of the results
9. Preparing the marks sheets and sending them to colleges.

Where code numbers are not given

1. Sending the answer books to examiners

2. Valuation of answer books by examiners
3. Receiving the mark sheets from the examiners
4. Tabulation
5. Declaration of the results
6. Preparing the mark sheets and sending them to colleges

It is an accepted fact that people try to influence the examiners by fair or foul means. For the sanctity of examinations it has become imperative to adopt the system of giving code numbers to at least those examinations that decide the future of students.

Last year in our university code numbers were given at the first B.Sc. examination. There were in all 1,415 students. Separate code numbers were given for different papers. For one paper one person had to put in about 60 hours work *i.e.* about a week is taken in giving code numbers. This time could be reduced if the pages of the main answer book are increased. The quantum of work will depend upon the method of giving code numbers adopted. If the method of giving code numbers is to be extended to final examinations also, the work has to be entrusted to senior teachers and/or principals. It is not possible for the office alone to cope up with the increased work. The time required in giving code numbers has to be reckoned with.

Time to be allowed to examiner for assessment work

Normally three weeks are given to examiners for valuation of the answer books. Ordinarily an examiner is given about 300 to 400 answer books. The time given is quite reasonable. It is not possible to give this much time to examiners for the examinations held in the second half of the year.

A difficulty arises when the same examiner is appointed at a number of universities. If the dates of submission of mark sheets at different universities are different, then there is no difficulty. But if the dates of submitting mark sheets to different universities coincide, a real difficulty arises. It is desirable to involve senior teachers from other universities in valuation work. It would be ideal if the universities in a particular region can adjust their examination programmes in such a way that the last dates of submission of mark sheets for a particular examination do not collide.

When an examiner accepts work from more than one university and if he is required to overwork, the quality of assessment is bound to suffer.

Six

Examination Research Unit

SHIB K. MITRA

QUESTION PAPER

THERE IS FREQUENT trouble over the questions set in an examination. (*a*) The questions may be considered to be too difficult; (*b*) they may not be on topics mentioned in the syllabus; (*c*) they may be written in a language which is difficult to understand; (*d*) all the questions in a paper may not be evenly spread over the entire syllabus; and (*e*) the questions may have leaked out.

FAILURE

Any university is concerned over the rate of failure in an examination. It wants to control the rate and keep it within reasonable limits. Students create trouble over failure, if there are too many failures. Students are disturbed over the fact that some fail by chance.

FIRST CLASS

(*a*) Like the rate of failure, a university wants to control the rate of first class graduates. Rightly or wrongly, it is believed that the rate should be low in the interests of standards. (*b*) There are more first classes in some subjects than others. (*c*) Students (and some teachers) get agitated over missing of first class by chance. Like those who fail, those who got first class stand out in the student community and therefore the community is concerned over who stand out and whether this is justified. Not only must justice be done, but also appear to be done.

ADOPTION OF UNFAIR MEANS

Although there has always been some cases of students adopting unfair means in an examination, such practices have increased in recent times.

There are various other problems like tabulation and marking errors, appointment of invigilators and examiners, distribution and collection of answer books, confidential printing of question papers, holding of examinations according to schedule announced well in advance, quick announcement of results, etc. These are, in a way, internal problems for the examining body and will not be considered in this paper. It should, however, be noted that managerial and organisational problems like these can be tackled by the methods of operations research which should be within the purview of an Examination Research Unit.

RESEARCH TASKS

We shall consider briefly, in relation to the problems enumerated above, what the tasks are for a research group.

RESEARCH TASKS IN RELATION TO QUESTION PAPER

(*i*) The difficulty value of a question can be determined from a sample of students being asked to answer the question before the question is actually set in the examination. There are difficulties in this because the time gap between the paper setter's appointment and examination is not much and the students in the sample who answer the question will have an advantage over those not in the sample in case the question is finally set. Try out of questions for estimating the difficulty value prior to the actual examination can be done only if teachers are encouraged to try out questions throughout the academic session. The paper setter need not be one of these teachers. The paper setter will be supplied with the set of questions as written by the teachers along with the difficulty values of each question. This becomes a kind of pool of questions from which the paper setter may draw the final question. The moderators also should have access to this pool and if they disagree with the paper setter they may select some other question.

(*ii*) An alternative way of estimating the difficulty of question may be devised as follows: Get an ideal answer for each question set from the paper setter. Then get a sample of teachers to answer the same question under two conditions, *viz.* (*a*) as best as they can and (*b*) the answer that an average student in his opinion is likely to give. The wider the discrepancy among the ideal answer given by the paper setter, the best answer given by the teacher and the answer that the teacher expects the average student to give, the more difficult the question. The problem here is secrecy. In order to maintain secrecy, one should try out a larger number of questions including the ones set by the paper setter. Or, give one question to one group of teachers, another question to another group and so on.

(*iii*) It is necessary to determine the difficulty value of each question in every paper set in an examination each year. This can be done after the examinations. The results should be fed back to the paper setters. While the two previous methods were suggested for pre-testing a question, the present suggestion is a method of post-testing the difficulty value of a question. The expectation is that if

the information about difficulty is regularly fed back to paper setters, examiners and moderators, they will learn to adjust the difficult level of new questions to be set on the model of the previously set questions, the difficulty values of which are already known.

difficulty of question
ie has to answer six
the ten questions is
much more important than when six are to be answered out of twenty. With few choices one cannot avoid difficult questions Increasing the number of

ful scrutiny by the board of moderators who should be aided by a factual report of what topics have been actually taught by the teachers in the colleges. A sample survey of college teachers can be quickly done to ascertain this.

(*v*) Then there is the problem of making the language of the question such that it is readily understood by the examinee. It needs empirical studies of students' perceptions of meanings of words and questions. Questions of several years may be analysed linguistically and empirically and the results should be fed back to the paper setter, examiners and moderators. Experiments on the intelligibility and readability of question need to be done.

RESEARCH TASKS IN RELATION TO FAILURE

(*i*) The difficulty values of the questions in a paper determine the rate of failure on that paper. It is therefore necessary to control the difficulty level of a paper in order to control the rate of failure on that paper. If, however, the examination results show that the failure is relatively higher in one or two papers, inspite of efforts to control the difficulty of questions, statistical adjustment can be made so that failure rate is more or less evenly distributed over all papers. In order to control the rate of failure which may vary widely from subject to subject and from year to year, it is necessary to make statistical adjustments so that the area under the curve of the distribution of marks in every subject remains more or less equal. Otherwise there will be easy subjects and difficult subjects. There will be the chance element associated with the year. One is just unlucky because one has appeared in the examination in a particular year. The year to year and *subject to subject fluctuations, as much as paper to paper within a subject*, should be statistically controlled.

(*ii*) The chance element associated with the examiner should be reduced. By empirical studies examiner leniency or stiffness should be determined. These findings about individual examiner's idiosyncrasy or bias should be fed back to all examiners, paper setters, etc. As a result of this feed back the examiners are likely to become more balanced and the unreliable examiner isolated.

(*iii*) The cut-off point below which a student fails is arbitrary. The reliability of marking at the cut-off point may be different from the reliability of the entire range of marks. In order to increase the reliability of marking at the cut-off point, it is necessary to establish a band, say of five

marks, on either side and re-examine all scripts falling in this band. This should be a routine matter to follow immediately after the statistics on any examination are available.

(iv) Improve generally the reliability of marking by (*a*) two examiners marking the same scripts independently, (*b*) spotting out the unreliable examiner, (*c*) controlling the method of reading and evaluating scripts questionwise, arranging in nine or eleven piles in rank order, arranging scripts in rank order within each pile and then marking, (*d*) limit of the number of scripts per examiner (empirical study to determine the optimum), (*e*) randomising the distribution of scripts (as in Gauhati), etc.

(v) Analysis of the consistency of performance across the papers in a subject should be regularly done. One should ordinarily expect a high positive correlation between papers in a subject. Besides, the distribution of marks in every paper should be scrutinised for discontinuity. Cases which stand out in such statistical analysis should be re-examined. Like the inconsistent examiner (a la'Taylor), the inconsistent examinee needs close study.

RESEARCH TASKS IN RELATION TO THE FIRST CLASS

The tasks are similar to the ones spelled out above in relation to failure. Only the cut-off point is at the high end of the curve of distribution of marks. It is not necessary to repeat the same points. Only one thing may be said. First classes are much fewer in number as compared to failure. Upsets in first class, therefore, are more easily noticed and become the focal point of agitation. So it is important to pay more attention to the problem of misclassification at the high end of the distribution. Every precaution needs to be taken to reduce the element of chance.

Both statistical as well as other operational steps should be devised on the basis of actual research data. Of particular importance in this context is the problem of yearwise variation and it is necessary to introduce some kind of scaling to make the first class of a given year somewhat independent of the chance factors operating in a year. One way would be to repeat some questions every year, which is contrary to the present practice. Somehow there is a prevalent opinion that there must be an element of newness in the questions. What happens in practice, however, is that students eliminate the questions set in the previous year. They, therefore, do not study certain portions of the syllabus which are also omitted by the paper setter according to the instruction received from the controller of examinations. By intelligent elimination of questions, students hit at most of the questions set. Their answers to these questions are, therefore, not thought out in the examination hall, as the opinion about newness of questions implies. Students' practices and habits in this regard need to be studied.

RESEARCH TASKS IN RELATION TO THE ADOPTION OF UNFAIR MEANS

Ordinarily, it requires punitive and restrictive operations of the police type rather than research in order to check the adoption of unfair means in examination. But the study of any society shows that there is always some deviant behaviour in relation to norms of conduct. Usually it is an inverted capital j-curve showing that large deviations occur less frequently than small deviations. When large deviations begin to occur frequently,

one needs to examine closely the norms and the regulatory forces which control normative behaviour. Attempts will have to be made through the techniques of social psychology to understand exactly how the deviation takes place. Attempts will have to be made to develop new norms and regulatory forces.

While on the topic of group psychology, certain other issues may also be touched upon. Today in a large affiliating university an important aspect of the trouble over the first degree examination is the frontal conflict between university administration and the students Much of it is largely due to the fact that paper setters and examiners are anonymous and the teachers

should announce the mode of examination : written, practical or oral. The public should be allowed to see the examination, if a teacher so decides. He should certify on the basis of his examination the marks awarded to each of his student.

One may react sharply to this proposal and say that there will be complete anarchy. But it need not b
decentralisation of examination
of teachers in colleges in the co
bipolarity of the field, *viz.* administration *vs* students. Not only psycholo-

regard to college teachers). In examinations he is only a wage-earner. Now, to avoid anarchy board
of teachers in each colle nd run
a common examination o harm
in this. The teacher who has actually taught the subject will set questions from the portions he has taught. There may be some variations in this which will gradually be ironed out as the system begins to operate and market pressures begin to act on the teacher. The questions will be scrutinised by

n and
teach,
g, but
logic
What
about comparability of standards from college to college? One may ask. This can be done in various ways. There may be a few common questions

academicians in the universities to set norms and uphold standards against contrary pressure from the college who in their turn are pressurised by students.

EXAMINATION RESEARCH UNIT

From the discussion on research problems and tasks in the preceding pages, it follows that several functions will have to be performed by an Examination Research Unit. It can be called by any other name.

(1) The ERU will have to do considerable statistical work. Statistical analysis will have to be one of its main functions.

(2) It has to undertake quick sample survey of opinion, attitude, practice, etc. of students and teachers.

(3) It has to make linguistic and other kinds of analyses of questions, prepare pools of questions and devise ways of improving question setting practices.

(4) It has to undertake experimentation and research on social, pedagogical and psychological aspects of examinations.

In order to carry out these functions efficiently, it has to have easy access to the office of the controller of examination as well as the registrar. But it should not be a part of the administration. It has to be set up outside the faculties too. This very position of the ERU will be to the advantage of the university in generating confidence among the public and the students. It can have a large specialised staff with quick data processing facilities, in the long run. To start with there should be a small staff with ranks equivalent to the registrar and controller and their deputies. The rest of the staff, at professor, reader and lecturer's level should be on secondment from the departments of the university. It should work through committees subjectwise as well as otherwise. These committees should have as their members as many from the colleges as possible. The idea is involvement and training in methods of examination. To ensure large participation, the committees should be allowed to invite other specialists in the field Also one third of the members should retire each year to allow quickly a large body of teachers of various subjects from various colleges to get an idea of what is involved in conducting an efficient examination.

The preceding discussion has centered on the first degree and the college. The principles, however, can be generalised without much transformation to cover the examinations at the postgraduate stage.

In the end, it should be pointed out that this paper has only raised certain issues and discussed the solutions tentatively and in a broad way.

Examination Reform

K. PATEL

EXAMINATION IS A means of evaluating whether the objectives of teaching and training have been satisfied Hence, we must have a clear concept about the approach to teaching and learning before discussing evaluation.

THE SYSTEM AS IT EXISTS AND SOME QUERIES

Some students are verbal and able to communicate their ideas and thoughts. *The present system of examination, through essays, favours these.* Others, who are not verbal, stand to lose a great deal, though they may be able to comprehend verbal material and possess several other important potentials A just and valid system of evaluation should not penalise such students.

Wastage : Our universities are few in number and only a small fraction of Indian youth, with the best academic records can enter their portals. When the students join the universities they are high academic performers. How is it that after two or three years in the universities they become drop-outs and are branded as useless and incapable of benefitting from education? What are the causes for the large percentage of wastage witnessed in our [illegible]

The perfect answer : In all examinations, the question of what should be considered the perfect answer is ever present. Who is to determine the perfect answer and should there be any flexibility in determining the perfect answer? If there is a perfect answer given, then why does not any student in a university examination attain that perfect level? What are the criteria to be applied for determining a perfect answer and how are [illegible] performance to be established so as to do justice to [illegible]

SURVEY OF STUDENTS' IDEAS ABOUT THE PRESENT SYSTEM

A survey of the students' ideas about the present system of education was conducted in West Bengal. Some extracts from the opinions given by students are reproduced below :

"The outcome of the present day system of teaching and examination is to make the students' mind a pigeon hole of facts, while the real task of appreciating the logical integration of discoveries and creative thought is largely masked the examination must evaluate the students' ability for independent thinking and his education must provide him with opportunities for undertaking independent work and solving real problems through projects"....

"The present system of examination evaluates the student's power of memorizing through a set of stock questions. The syllabus set is so huge, it is practically impossible to study, so the student leaves out the 'unimportant portions' and concentrates on the 'important' portions in order to score high marks in the examination and so to succeed."

"Judging from the questions that appear at the university examinations, it seems as if the paper setters are not interested in doing their duty which is to evaluate the true merit and growth of the pupils. Year after year the same questions are churned out of the university machine and frequently the students are heard to say 'no, no this question cannot come this year, it has already been set last year' or 'there is a high probability of this question appearing this year as it has not been set for three consecutive years'. If this is so then why have paper setters? A computer would probably help to choose a more random set of questions than the paper setters of the universities."

"A good student must display many other abilities and skills besides those evaluated by the conventional university examination. College education is supposed to make students alive and alert. It must not choke them or bore them and examination must be a challenge and not a death knell that it seems now-a-days."

Students express a preference for a mixture of objective multiple choice, matching and short essay questions to evaluate critical and analyticl thinking and judgement overlong conventional essays to evaluate their growth and performance. According to them "examination must discourage the popular practi e of doing nothing the whole year round, hastily cramming a few selected questions from selected chapters just before the examination, disgorging the information in the answer scripts and then forgetting for ever." The questions must be evenly spread over the syllabus so as to discriminate between those that have a clear and deep understanding of the subject and those that rely on luck or the authenticity of their source of suggestions.

A university course is, or should be, designed with a particular student product in view. If the aim of the university is to create waiting rooms for the unemployed to spend their time in, then nothing matters. But if students feel that after having ploughed through a university, they find nothing to ignite the spark of creativity or to measure its growth then the matter deserves serious attention. "What the university authorities have failed to realize is that learning a subject to get good marks in examination and really knowing it (understanding its principles and applying them) are quite different things. Though many students manage to score high marks through clever

examination oriented study, few of them have a true concept and understanding of the subject".

A student once wrote in his college magazine that "the authorities carry out the process of education like the production line of a factory. After a normal student is subjected to a certain dose of lecturing it is presumed that he will become a normal engineer or doctor. Oddities are not encouraged".

"Our education cannot improve with the present psychology of teachers and students which is completely examination-oriented", complain the students. "Even that would not be so bad if the paper setters had not been so afraid of improving the system of examination and the authorities able to use their imagination and insight to understand the needs of the students for proper training."

EVALUATION OF MULTIPLE POTENTIALS

Truly creative students even with academic potential, fail in our colleges Dr. Calvin Taylor, coordinator of the Eighth International Creativity Research Conference noted that colleges fail most students because they provide *programmes designed to measure academic ability and ignore many* outstanding abilities that people have and need in the world of work like planning, organizing, evaluating, forecasting, creating, decision making, problem solving and communicating. According to R J. Lacken, Ex-Director of NASA "the broadest and most cruel discrimination practised by the edu- [illegible] not happen to [illegible] He indicated [illegible] the work of [illegible] close to the [illegible] evidence of educationists who are committed to change and look forward to seeing the fruits of their labours.

It is suggested that our universities group the potentials, characteristics and skills required in the world-of-work, work out the profile of each student for all the different aspects and obtain a true image of each student and his growth. The system then would reach out to each and every student in our universities and find some promise in all students from all parts of our society. By doing so the universities would not be lowering the standards, but only changing the standards, of opportunity and surely there is nothing wrong with that. The universities cannot remain long as castles to be entered into, and used by, a specially selected elite only. It is anticipated that a large proportion of the population will be beating at the doors of the universities in the future and the problems of proper evaluation would become more and more acute. In the light of what is possible in terms of the multiple potential approach, all our university students are deprived and many of their most important potentials go completely unnoticed and unevaluated.

Today by branding a student with low marks, at one trial on five essays, as a misfit, the university kills his chances for ever. Employers have scant respect for the marks obtained by students in university examinations. By evaluating and presenting a profile of all the abilities and potentials of a student, a university degree will gain the respect it so richly deserves and the

student will gain the recognition he needs after putting in three or five years of labour.

EXAMINATION REFORM AND EXISTING CONDITIONS

Examination and educational reform must be considered against the backdrop of the current national frustration at the dropping standards and decreasing discipline. People are getting tired of waiting for educational reform and for some one to provide proper education for their words—education that is relevant to the needs of youth and our age. Since our universities seem to read the signs of time, it is high time for our universities to re-examine their practices and purposes, stop using the technique of teaching used in Britain and Europe during the rennaisance, loosen rigid curricula and techniques of evaluation, curb the old absurdities of branding most young people as misfits and introduce innovations. This is the crucial time for Indian universities (higher education) to promulgate new reforms, introduce experiments and slough off non-productive practices.

So far our universities have been most sluggish to introduce changes and have concentrated on sitting on judgement on youth. It is high time for them to end their sole preoccupation with judgement; display sensitivity to the needs of youth and the times and start thinking in terms of helping the students. This they can do by developing clear objectives, reliabile and valid tests to evaluate more precisely the potentialities of students and the amount of growth that has taken place between reasonable intervals and also by guiding the colleges on the type of instruction that would produce the growth of all the potentials.

STUDENT RESISTANCE TO CHANGE

Resistance from students for changing the system, structure and methods of examination is anticipated. It is our experience that clearly explaining the general and specific objectives of the examination belies the fear of the unknown and forestalls resistance to change from student groups. All objectives of setting each paper are clearly explained to all students *via* instructions to candidates. Students are suspicious of examination authorities because they don't know what is wanted and further are suspicious that authorities will add some more unknown elements to their already existing troubles. The younger generation today views the university as a machine responsible for their misery, repression and frustration.

The ultra-radicals in any institution or university can never be appeased. Their aim is to make trouble, not to seek redress. However, they can be made relatively impotent if the establishment can ensure that they do not gain much of a following from the less militant majority. The authorities must, therefore, make concessions and changes for the benefit of the moderate majority before they join the ultra-radical minority and forestall trouble.

SOME SPECIAL PROBLEMS CONSIDERED

There may be some problems that are common to many universities but many problems would be specific to a university. Each university must have its own *research and evaluation cell* for dealing with its problems, deve-

to change.

INTERNAL ASSESSMENT OF EACH STUDENT

There is a school of thought that subscribes to the theory that all examinations must be the sole responsibility of teachers and *all examinations must* [illegible] bout the trustworthiness [illegible] In theory, they should [illegible] l on the criteria that (*a*) the teacher is competent in teaching and evaluating (which is not always so) (*b*) the teacher is sufficiently interested and perceiving to study the student in all aspects (which unfortunately is not our experiencce) (*c*) that the teacher is honest enough to separate his subjective attitudes and forget the brushes that he had with the student to form a true objective assessment of the student. (The tendency to hold the marks over the student's head as a sword of damocles to cover him into submission and stop him from asking questions is ever present.) Of course, the system has certain advantages, foremost among them being that of maintaining discipline.

The system of complete internal assessment has had to be modified even in a country like U.S.A. [illegible] organisations like the [illegible] been established. Th[illegible] Secondary Education and universities are performing. If Indian universities want to go through the whole process and arrive at the same conclusion through their own experiences, then certainly decentralization may be experimented with.

SUGGESTIONS FOR CHANGE

In the light of the foregoing and on the premise that the university exists to serve the needs of the students and its image must be that of a friend, philosopher and guide, the following suggestions are offered:

1. The policy on examination reform must be long range. Short range measures may be adopted only as interim measures.
2. A band of teachers from all over India should start spelling out the general and specific objectives of setting questions; the course to be covered at each level, the range of difficulty value of questions needed and other characteristcis of the questions. After preparing and trying out the questions, they may be retained in a common central *Question Bank* from which the universities may draw as and when necessary.

3. In preparing a question paper, let the teachers give the characteristics of the questions required, *e.g.*, the difficulty value, abilities and characteristics and knowledge to be measured and the weightage to be assigned to each characteristic. All information about the characteristics of a question may be stored in the memory of a computer. The details of the characteristics of questions wanted for an examination may be fed into the computer so that it would randomly pick out the questions to form a whole paper as and when required. In this way all questions will be objective based. The only person that need really know the question paper is the controller of examinations.

4. Let two or three equivalent forms of the question paper be prepared with different questions. Randomise the order of the questions in each form of the paper to get another three versions. Thus, altogether nine versions of the paper will be available for immediate use. With nine different versions to cope with, the printing costs will certainly shoot up, but it would be a challenge to the students to cheat, even with mass media.

5. The students must be clearly informed about the objectives of the paper set before the examination.

6. The evaluation of multiple choice, fill in blanks, matching, etc. type of questions should be computerized. Preference may be given to short essays as against long ones. The objectives of setting each essay question must be given with the question. The essay type of questions may be evaluated *independently, by at least* two examiners. Each of the examiners must evaluate the same essay separately for each of different criteria sought to be measured. The discrepancies may be ironed out at a joint meeting with the head examiner.

7. The university must give clear directions to examiners of viva voce tests about the abilities, characteristics and skills to be evaluated at the viva. Let the viva be tape recorded so as to ensure that it was really conducted properly and the student judged on each of the required aspects. By letting four or five competent persons listen to the recorded viva and give their own evaluation, it is possible to establish norms and to use bits from it for training of young examiners.

8. The results of the examination may be presented in the form of percentile ranks or percentile bands on different aspects. Thus, a student would receive a profile of his performance and growth on each of different abilities, skills, characteristics and knowledge from the university.

9. All university teachers must receive training in teaching and evaluation.

10. Each university must establish *a sychometric, evaluation and research cell* whose workers are directly responsible to the vice-chancellor. The successful working of the cell would depend on the following conditions:

    (*a*) The personnel working in the cell should be responsible only to the vice-chancellor of the university.

) All data and information should be made available to them as and when they need it.

) All affiliated colleges must offer whole-hearted cooperation and help to the officers of the cell.

) The workers in the cell must devote their energies full time to the research and evaluation work of the cell

) The findings of the research studies must be implemented in action. The work of the cell should not be just a futile, intellectual exercise and its reports and recommendations must not be prepared only to be shelved.

) *Specialists may be called upon to cooperate on certain projects* being undertaken by the research and evaluation cell and to act as consultants, as and when necessary.

) The cell must have the facilities of an electronic computer available for use.

) The schemes to be taken up for evaluation and investigation by the cell would be determined on the basis of priority. Some work in connection with the regular examinations like validation, reliability, scaling, etc would continue on a routine basis.

) It would be the duty of the cell to sense the needs of students, offer guidance and advice to the authorities an on to improve and refine the testing procedures and ensure that the examinations keep up with the changes in the objectives, syllabi, text books, teaching practices and the needs of students.

) The cell would be an objective, independent and impartial body of experts which would evaluate needs and offer recommendations.

) Any one directly connected with the cell on any project must not be a paper setter, or examiner in the university, *if the project deals with the examination with which he was* associated Similarly, no text book writer may be directly connected with any project on text books.

) The objectives of the cell would be to help ensure that university education is relevant, quality oriented, elastic and sensitive to change.

entral computerized *service for matching student profiles with* ; should be maintained by the university. Data about re- ·ements of employers and the characteristics of each student / be matched and the universities may recommend the most able young people to employers.

3. In preparing a question paper, let the teachers give the characteristics of the questions required, *e.g.*, the difficulty value, abilities and characteristics and knowledge to be measured and the weightage to be assigned to each characteristic. All information about the characteristics of a question may be stored in the memory of a computer. The details of the characteristics of questions wanted for an examination may be fed into the computer so that it would randomly pick out the questions to form a whole paper as and when required. In this way all questions will be objective based. The only person that need really know the question paper is the controller of examinations.

4. Let two or three equivalent forms of the question paper be prepared with different questions. Randomise the order of the questions in each form of the paper to get another three versions. Thus, altogether nine versions of the paper will be available for immediate use. With nine different versions to cope with, the printing costs will certainly shoot up, but it would be a challenge to the students to cheat, even with mass media.

5. The students must be clearly informed about the objectives of the paper set before the examination.

6. The evaluation of multiple choice, fill in blanks, matching, etc. type of questions should be computerized. Preference may be given to short essays as against long ones. The objectives of setting each essay question must be given with the question. The essay type of questions may be evaluated *independently, by at least* two examiners. Each of the examiners must evaluate the same essay separately for each of different criteria sought to be measured. The discrepancies may be ironed out at a joint meeting with the head examiner.

7. The university must give clear directions to examiners of viva voce tests about the abilities, characteristics and skills to be evaluated at the viva. Let the viva be tape recorded so as to ensure that it was really conducted properly and the student judged on each of the required aspects. By letting four or five competent persons listen to the recorded viva and give their own evaluation, it is possible to establish norms and to use bits from it for training of young examiners.

8. The results of the examination may be presented in the form of percentile ranks or percentile bands on different aspects. Thus, a student would receive a profile of his performance and growth on each of different abilities, skills, characteristics and knowledge from the university.

9. All university teachers must receive training in teaching and evaluation.

10. Each university must establish *a sychometric, evaluation and research cell* whose workers are directly responsible to the vice-chancellor. The successful working of the cell would depend on the following conditions:
    (*a*) The personnel working in the cell should be responsible only to the vice-chancellor of the university.

(*b*) All data and information should be made available to them as and when they need it.

(*c*) All affiliated colleges must offer whole-hearted cooperation and help to the officers of the cell.

(*d*) The workers in the cell must devote their energies full time to the research and evaluation work of the cell.

(*e*) The findings of the research studies must be implemented in action. The work of the cell should not be just a futile, intellectual exercise and its reports and recommendations must not be prepared only to be shelved.

(*f*) Specialists may be called upon to cooperate on certain projects being undertaken by the research and evaluation cell and to act as consultants, as and when necessary.

(*g*) The cell must have the facilities of an electronic computer available for use.

(*h*) The schemes to be taken up for evaluation and investigation by the cell would be determined on the basis of priority. Some work in connection with the regular examinations like validation, reliability, scaling, etc. would continue on a routine basis

(*i*) It would be the duty of the cell to sense the needs of students, offer guidance and advice to the authorities an on to improve and refine the testing procedures and ensure that the examinations keep up with the changes in the objectives, syllabi, text books, teaching practices and the needs of students.

(*j*) The cell would be an objective, independent and impartial body of experts which would evaluate needs and offer recommendations.

(*k*) Any one directly connected with the cell on any project must not be a paper setter, or examiner in the university, if the project deals with the examination with which he was associated. Similarly, no text book writer may be directly connected with any project on text books.

(*l*) The objectives of the cell would be to help ensure that university education is relevant, quality oriented, elastic and sensitive to change.

11. A central computerized *service for matching student profiles with jobs* should be maintained by the university. Data about requirements of employers and the characteristics of each student may be matched and the universities may recommend the most suitable young people to employers.

Problems of Innovation

DURGANAND SINHA

THE POINT PUT forward in this note is that modern innovations in examination system require careful scrutiny with regard to their functioning under the social conditions prevailing in the country and the facilities obtainable in educational institutions and the pressure exerted by the student bodies and the public in distorting the results of the assessment system. It is also contended that what is immediately needed at the present juncture is reform within the existing system of essay-type of examination rather than a wholesale change in the system. While the scientific superiority of the modern objective tests is not denied, it is felt that it necessarily implies certain preconditions which are generally not available in the educational institutions and the universities. The point of view that is adopted here is that introduction of any innovation presupposes for its success certain structural and attitudinal transformations and changes in the norms of behaviour in the social system where it is proposed to be adopted. Without these, the innovation either gets rejected or its result is distorted leading to consequences which are sometimes unexpected and undesirable.

Without getting into the detailed examination of the scientific merits and demerits of new types of examination, I would discuss some concrete occurrences which have taken place in a number of educational institutions frustrating the very purpose for which the reform is sought to be introduced. The fate of sessionals and internal assessments is a case in point. When internal assessment was introduced at the pre-university level, it was often discovered that there was hardly any correlation between the marks obtained by candidates through internal assessment with the marks they obtained in the regular examination. Moreover, marks of the sessionals and internal assessments were frequently found to be abnormally skewed on the high side. The same students got considerably lower marks in their written examinations. This should not lead one to think that students did excellent work in their classes and slid down to a low level due to the abnormal situation of

while the internal assessment made by the teachers themselves who conducted the courses should be relied upon. The fact of the matter is that the teacher had succumbed to the undue pressure of the social forces that surrounded him. If he happened to be in a private institution, he could not afford to displease the powerful members of the managing boards and with the system of "extended families" and liberal attitude adopted by the powerful people in the community in readily extending a helping hand in spheres where help rendered could rarely be justified on moral and social grounds. Added to it is the pressure exerted by the powerful student bodies which, among other things, exert undue pressure on the teachers and administration for lowering of academic standards In some of the universities in the north, the role of the student power in boosting up the marks of internal assessment cannot be ignored. It completely distorts and negatives the very purpose and justification for sessional work and internal assessment.

Internal assessment by itself is an ordeal thing The teacher who teaches the course is the most competent person to assess the students But with some of the pressures on teachers indicated above, I would contend that in the contemporary social milieu and conditions prevailing in the educational institutions, there is certain degree of safety in the impersonality of the external examination At least it is comparatively free from local pressures and student power which an average teacher is finding increasingly difficult to resist and combat.

The prevalence of mass copying and other kinds of corruptions in the examination are becoming increasingly widespread and due to danger to the personal life and property, the teachers and the administration are finding it extremely difficult to check them The new type of objective examination where a question can be answered in one word or a short sentence and with multiple-choice alternatives provided, widespread use of unfair means and

specially emphasized this point because use of public address system in dictating answers to the questions and free consultation within the examination hall are not unknown these days.

The internal asse
level of honesty and
others concerned with
spells greater danger
nation. In any case
of sessional and internal assessment has made the examination any more reliable.

Some institutions have adopted the semester and credit systems and along with that reorganisation of courses, more frequent assessment of students' progress through class tests, mid-semester and end-semester examinations. All these presuppose continuous work on the part of student and assessment of his educational attainment throughout the year rather than

ırough one end-of-the-year examination. It also implies that a student
ho does not maintain a minimum credit has to repeat the course and if he
erforms below a certain level, he has no right to continue or to get promot-
l to the next class. In one or two institutions, I have found that the pres-
ıre exerted by the students union has completely negatived all these. It is
ell-nigh impossible to detain a student or to send him down even under a
emester system. Except in the Indian Institutes of Technology, the Indian
ıstitutes of Management and some other institutions more fortunately plac-
l, the system has been meeting all kinds of crises due to the pressure of
udents bodies. Even semester examinations are postponed under students
ressure. New courses cannot begin; the assessments are late and students
ho hardly attain any passing credits still manage to sit in next higher class-
. Semester system and the process of continuous internal assessment
ave inherent merits but their introduction in the face of the pressures and
onditions that prevail in most educational institutions have led to the
imination of the very features which constitute their essence. Over and
bove, paucity of staff and excessive teaching load leave the teachers with
ery little time to organise and plan semester courses and prepare adequate
bjective examinations. Merely providing questions with multiple choice
ternatives do not necessarily make the examination good. Even the pre-
aration of examination requires considerable time and skill and continu-
us process of check on its effectiveness. To achieve this, the institutions
quire an infrastructure which cannot afford to build with the very
mited support and resources available to education.

Though I have indicated some actual cases of difficulties which the
ew system of examination has faced in our educational institutions, I am
ersonally fully aware of the intrinsic merits and the desirability of taking
me of the good points of the system and implementing them effectively and
ccessfully. Before doing that, the new system has to be examined care-
lly in the light of the dangers and blocks that stand in the way of its success-
l implementation.

The existing system of essay-type of examination has been the most
tacked and maligned one. It has many defects which need immediate
medial measures. But the very fact that in spite of the severe criticisms
ıd all pro-ged attacks, it has managed to continue points to its inherent
rength. What is, therefore, required urgently is not its complete replace-
ent but taking remedial measures which are not difficult to implement.
ne of the legitimate criticisms against it is the inadequacy of its coverage.
an examination, the questions are set in a manner that students can
anage to pass by omitting almost half or two-thirds of the course. The
adequacy is not due to the inherent nature of the system but because of
rtain conventions and practices which have accrued to it in the course of
ne. A practice that has grown over years is that the same questions and
pics should not be repeated in a subsequent year. There exists almost a
nd of "ban" on repeating questions in consecutive examinations. It means
at students can safely leave out *all* the topics and questions from his pre-
aration which had featured in the preceding examination. Secondly,
ere is another convention, which has almost evolved into an informal rule
some universities, that examinees are given sufficient *choices* of questions,
ıd the instruction to the examiners often lays down that twice the number
questions as are required to be answered by the candidate should be set
the question paper. Providing such a wide choice makes guessing safe,

and students easily manage to get through by highly selective reading conveniently leaving out more than half of the syllabus. This unhealthy convention has now become a part of the so-called "legitimate" demands of the students. In fact, in one of the major universities there was a walk-out and violent student demonstration when only eight questions instead of

the only alternative left to the university was either to close down or concede the "demand" of the students The university decided to scrap the question paper and set another examination with nine questions

Now, these two practices are undesirable Drastic reduction in choice of questions, or its elimination altogther would ensure adequate coverage of the courses in the assessment For example, if there are ten topics prescribed in a syllabus ten questions, each covering one topic, should be set and *all* of them should be compulsory If alternatives are to be provided, each question should have its own alternative from the same topic rather than twenty questions set from different topics and allowing students to pick up freely eight or ten for answering This would ensure that an examinee will not be able to skip large portions of the syllabus and the assessment of his academic attainment in the course is likely to be more adequate.

Essay-type examination is proverbial for its unreliability The danger is very real. It is my feeling that the defect can be mitigated to a considerable extent if careful planning is done before hand and certain measures are adopted while assessing the scripts A careful determination of the course-objectives and framing the examination accordingly are essential. The teacher concerned should be clear in his mind as to how much of factual information he is wanting to assess, how much importance he is going to put on comprehension, organization of material, originality and so on. If these are outlined beforehand the weightage to be given on each is decided, the questions can then be appropriately framed and assessed. For example, questions on factual information would be such that there would hardly

would refer in this context to the procedure which is generally followed in psychological researches when content analysis is employed as a tool. If qualitative material can be quantified and reliably scored in content-analysis, there is no reason why outlining of course-objectives, framing of appropriate questions and concrete and detailed instruction for assessment would not considerably enhance the reliability of the essay-type of examination. In fact, in an *ad hoc* experiment that we conducted, we followed this procedure and keeping a constant check on the extent of agreement in assessment of every twenty or twenty-five scripts, it was found that inter-examiner agree-

Another desirable step worth trying out is having short-answer type of questions rather than depending upon four-five questions with lengthy rambling answers. Such questions ensure adequate coverage of the course, can be made more pointed and are also easier to assess.

Marking system commonly employed in essay-type examination needs some modifications. A human yardstick cannot be as accurate as a micrometer nor can it be equally constant and reliable. Human nature being what it is, the same material can be quite rightly allotted 55 per cent marks in the first assessment and if assessed later, 58 per cent. The range of variation may, in fact, be frequently greater. Concerned with human assessment, these absolute values hardly carry any meaning and one is not justified in saying that a person who has got 52 is necessarily superior to a person who has got 51 marks even though they may have taken the same examination. Such minute and fine discrimination is unreasonable to expect of a human evaluater. Therefore, better system would be to place an examinee's attainment in a range rather than allotting him absolute marks, *i.e.*, adopt a grading system. For example, instead of putting the mark as 54, it should be in the range 50-55. Similarly, instead of giving total marks, it would be better to fix certain ranges in various divisions and place the students appropriately in those ranges. The first division may comprise four ranges like (*i*) rare and exceptional (85 per cent or more), (*ii*) high distinction (75 per cent to 85 per cent), (*iii*) very superior (65 per cent to 75 per cent), and (*iv*) borderline first (60 per cent to 65 per cent) Similar range of scores can be worked out for the second division as well as the lowest division.

Another remedial measure which is being tried in a number of universities is the system of double examiner. While independent and honest assessment by two examiners is likely to be more reliable than an assessment made by a single examiner, this system has not proved as successful because of some local limiting factors of the sort indicated earlier. I would cite only one case. In one of the universities the internal examiners had worked out a marvellous system for helping their favourite candidates. They would be assessed in a manner to ensure a discrepancy of more than 15 per cent with that of the external examiner, which would automatically send such cases to the board of moderators for final grading. In such board cases, the internal examiners usually manoeuvre to have their own way to the satisfaction of the local influential elite. If internal examiners cannot be forced to act more honestly, it would be more appropriate to send such 'board' cases for final decision to an entirely new panel of two examiners, both being external.

Another defect that vatiates the essay-type of examination is the lack of sincerity on the part of the examiners who often skip over the pages without carefully reading the answers. This tendency is accentuated when he is confronted with a large pile of answer scripts generally in bad hand-writing which is sometimes difficult to decipher. There is no reason why the examinee should not be penalised for writing illegibly. In cases where the writing is reasonably clear, it is essential to ensure that the examiner takes the trouble of reading the answers before evaluating. For this purpose, apart from proper supervision exercised by the senior examiners and drastically limiting the number of scripts allotted to individual examiners, I would also suggest the system of inserting a few dummy answer books into the bundle of papers sent to a particular examiner. These dummy answers should be prepared in a manner that without reading them carefully one is

likely to commit gross errors in marking and thereby betraying his wilful negligence and casualness of work when these particular answer books are scrutinised by the head examiner. Besides, he may be instructed to mark all the gross mistakes in spelling of technical terms and names of eminent scholars whose research is likely to be quoted by the examinees. Some [illegible] at more than [illegible] iner What [illegible] As in such [illegible] yond certain limits of tolerance, the examiner concerned should be made to reassess the entire lot of papers under very close supervision

Another check to ensure that the examiners have done their work properly and conscientiously would be to return the answer books to the student concerned who may discuss, if he so desires, the grading made by the examiner. While this would be a difficult thing to achieve in a large-scale public examination, it can certainly serve as a corrective in more frequently held class tests and terminal exeminations. Besides, the answer papers [illegible] exert tremendous pressure on the examiner concerned to work carefully and honestly.

I would conclude that any system of examination requires a sense of responsibility, conscientiousness and a degree of honesty to make it work. Absenee of these is seriously damaging the prevailing essay-type of examination It is my contention that whatever system is introduced or rules framed, they would be vitiated if they are not backed by a proper sense of duty, responsibility, devotion to work and honesty. One can have good rules but good rules without good intention do not work. Therefore, apart from certain measures that have been suggested to improve the existing system of examination from within, there should be a missionary effort to instil in the minds of persons concerned with assessment of answer scripts the importance of taking tl [illegible] and conscientiously [illegible] not only any system [illegible] merits, but would destroy the entire process of education in the country. Crisis of character is deplorable; it is more so in the teacher.

mprovement in Examination .nd Teaching

S. GUPTA

IE FOLLOWING STEPS for the improvement of our examinations and teaching : suggested:

1. Confidence on the teacher is to be greatly increased.
2. Better social and economic stability is to be given to the teachers.
3. Teachers who are involved in any type of corruption should be severely punished and removed, if necessary.
4. Teachers should be highly honest, with high personality and above all blemishes of the society. Morally they should remain at the topmost level of the society.
5. Much greater weightage is to be given to the internal assessments. They should play the greater part of the total assessment of our students, since internal assessment can take into account all the aspects of the development of a student.
6. The internal and external examination results are to be kept separately and should never be combined artificially. Even addition of the marks of the different subjects, without standardising the scores, should be avoided. Quite often the scores of Arabic, Persian, Urdu, Pali, Linguistics, Hindi, Sanskrit, Music are highly inflated. If they are added with the scores of other subjects, the totals will give some false impressions. This is quite often done in the board and university examinations.
7. Some of the items of internal assessment, as for example, attitude, interest, personality traits, etc. may be assessed in descriptive or qualitative terms, *e.g.*, excellent, good, fair, moderate, tolerable, unsatisfactory or other such statements or grades.
8. The internal examination is a continuous process and should be done by the teacher informally at every step and guidance is to be

given accordingly. More formal internal examinations may be held at weekly or monthly or quarterly intervals.

9. The external examinations should exist. But they are to be reduced to the minimum B.A. part I examinaion should be made internal with immediat· effect. B A. part I course should not be included in the B.A. part II examination. B A. part II examination only should be conducted by the university and the B A. results (both Honours and Pass) are to be announced by the university based on this part II examination only. Part II examination only can fully justify the calibre of a candidate. Regarding part II examination, the candidate will get a certificate from the college concerned

10. Certificates or marks sheets should show the achievements of the pupils in-different subjects and no remarks that he has passed or failed or got first or second class should be shown The achivement in each subject may be divided into five gardes, e.g., A, B, C, D, E, Diplomas are to be given to those who have passed in 60, 70 or 80%(as decided by the university) of the number of subject, opted for examinations by a candidate. The number of subjects to be passed will depend upon the examination. As for example, at the B.A. part II examination a candidate will have to appear at four subjects. Out of these he will have to pass in any of the three subjects in order to get the diploma Re-examination of scripts should be abandoned. This is a force.

11. The first and second languages should get equal importance along with other subjects at the B.A examination and no special importance should be given to these subjects.

12. Questions should be mainly short answer-type questions. "Answer as many as you can" out of 20, 25 or 30 questions, should be the direction in most of the question papers. This will give the examinees every little chance to consult or copy, as they will always be short of time. Most of the subjects should have two papers, one consisting of short-answer type questions, having a duration of two hours and the other of the "clear cut essay type" questions, having a duration of three hours. Both should cover the same syllabus.

13. At present the guards are found to be more corrupt than the examinees. Hence, more the guards, more the corruption. If the examinees know that they will have to pass *any three* out of four or five subjects to get a diploma, they will be less bent upon corruption Again if any examination cannot be held due to disturbances created by the candidates in any examination centre, the examination need not be taken again. The better students will have no hindrance to get the diploma, since any student will have to pass only 60 or 70% of the number of examination subjects. No examination is to be repeated, unless it is postponed by the university.

The examinations are to be held on scheduled dates at intervals of six months.

Tabulation work should be abandoned at the B.A. Pass examination. Only in the Honours B.A. examination for addition of the marks f the Honours papers tabulation may be retained. In the B.A. ass examination, the successful candidates for each subject will get

certificates on the basis of the results given by the head examiners. If they can show university pass certificates for the requisite number of subjects, they will get the diploma. Thus there will be no delay in the publication of results.

Examinations, if properly organised, are sources of inspiration to the pupils and satisfaction to the teachers. Right use of examinations will make the whole educational programme a thing of beauty and joy and cause progressive growth of the students. This will also improve teachers' efficiency.

The various informal examinations that may be devised are as follows: (1) observation, (2) interview, (3) oral, (4) group discussions, (5) erective, (9) activities, (6) co-curricular activities, (7) projects, (8) questionnaires, check list, (10) rating scale, (11) standardised scales, (12) cumulative record card, in addition to the written tests *e.g.* objective tests, short answer type tests, essay type tests, open book tests.

The external examination may be of three main types : (1) Short answer type, (2) Clear-cut essay type, and (3) open book type. The first two types are more suitable in the big public examinations. In the open book type the number of questions shall be one or two and the duration shall be three or four hours. The candidates may bring any book or written papers as they like. This will inspire them to collect all types of materials before hand. Thus they will learn to collect materials from various sources and they will learn a lot.

Our object is to inspire the students to learn. And this can be done to a great extent through examinations. Examination is subservient to education. It is a means and education is the end.